...NOLOGY DEPT.

TEXTILE WORLD

A McGraw-Hill Publication

APRIL • 1946

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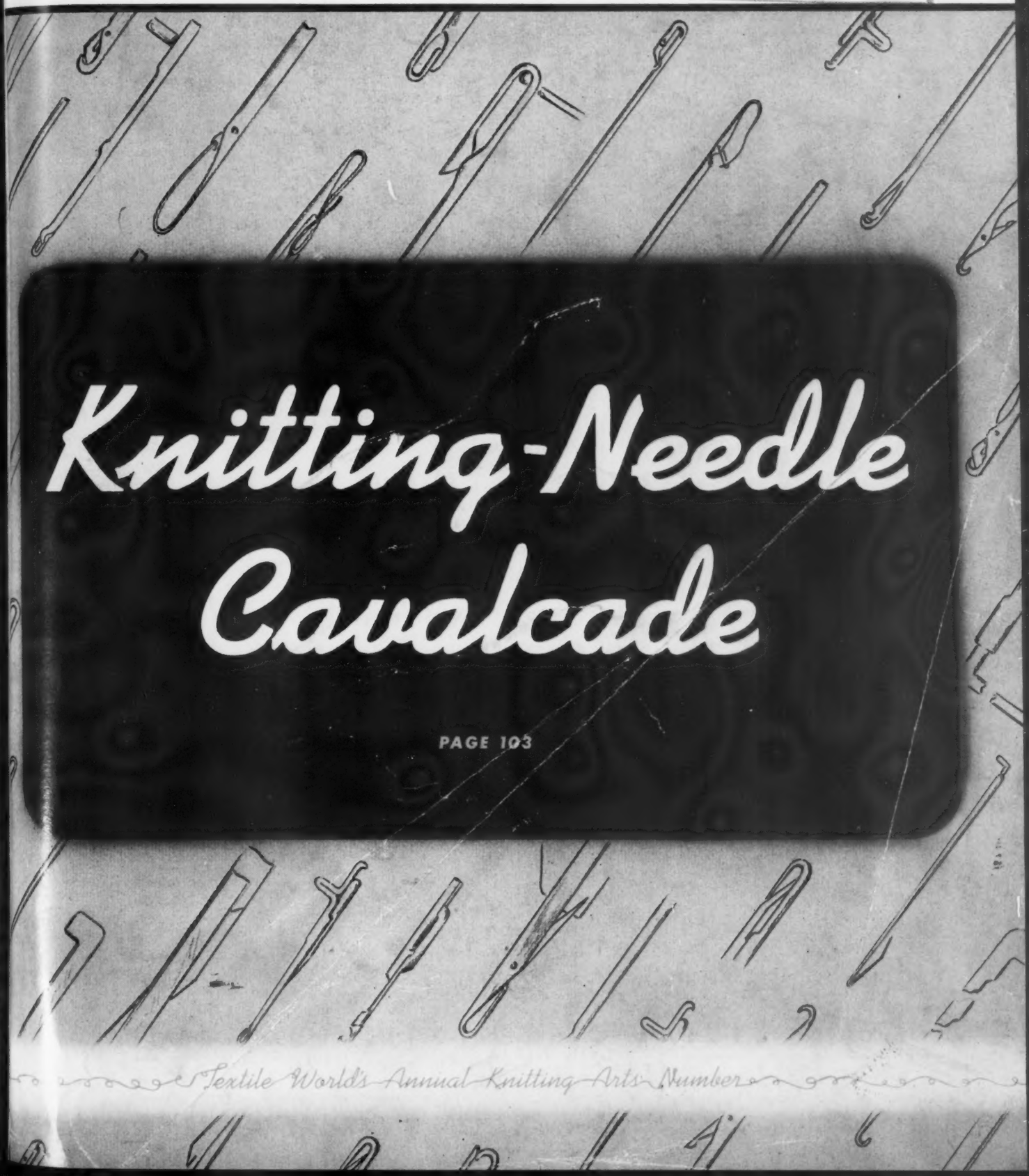
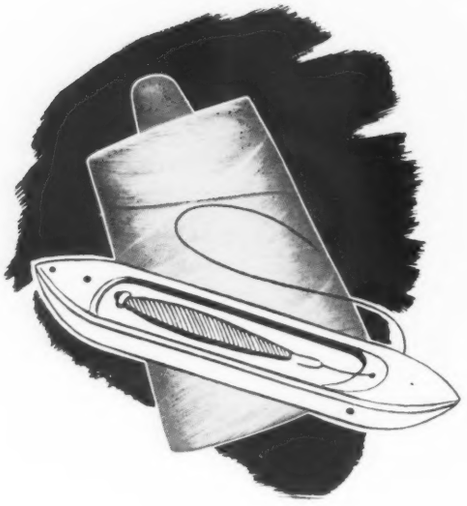


Knitting-Needle Cavalcade

PAGE 103

Textile World's Annual Knitting Arts Number

COTTON • RAYON • WOOL • SILK • NYLON



Plans and designs for all types of projects related to the textile industry. Appraisals, modernization studies, machinery layouts, air-conditioning, power and water filtration plants, and other phases of textile engineering.

ROBERT AND COMPANY
INCORPORATED
Architects and Engineers
ATLANTA

TWENTY-EIGHT YEARS' NATIONWIDE EXPERIENCE
IN INDUSTRIAL AND TEXTILE DEVELOPMENT

TEXTILE WORLD, Vol. 96, No. 4, April, 1946. Published monthly by McGRAW-HILL PUBLISHING CO., INC. (Brandon, Lord & Nagle Division). Publication Office, 99-129 North Broadway, Albany, N. Y. RETURN POSTAGE GUARANTEED. Editorial and Executive Offices, 330 West 42nd Street, (18) N. Y. Allow at least ten days for change of address.
Subscriptions: United States and Possessions, and Latin American Republics, $1.50 a year, $2.00 for two years, $3.00 for three years. Canada, $2.00 a year, $3.00 for two years, $4.00 for three years. All other countries $2.00 for one year, $4.00 for three years. Please indicate position and company connection on all subscription orders. Entered as second class matter August 25, 1936, at Post Office, Albany, N. Y., under the act of March 3, 1879. Printed in U. S. A. Twenty-five cents per copy.

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Mr. Loomfixer:

Your Wartime Troubles from Loose Shuttle Screws are over.

Wartime Shuttle Screws were made from inferior steel and were fitted with steel nuts. These steel nuts did not hold as firmly as brass nuts. They were all we could get. We bought them from outside sources because restrictions on bar steel prevented us from making and furnishing our regular product.

A Pre-War Product to Be Proud Of

Our Pre-War Shuttle Screws were turned from solid steel bars on our special automatic screw machines. They were fitted with brass nuts.

They were—and still are—an ideal combination for the purpose for which they are made—to hold your shuttle springs firmly in place.

You have been longing for Pre-War Shuttle Screws.

They Are Here.

They are not a "Post-War" product. They are a pre-war product that HAS COME BACK to give you the service you have Missed since they Became a War Casualty.

Draper Corporation

Atlanta Hopedale Spartanburg

KEEP NEEDLES RUST-FREE for IMPROVED KNITTING

YOU'LL turn out more uniform knit goods by using *Texaco White Needle Oil B.* This specially refined lubricant preserves highly polished needle surfaces longer despite knitting-room humidity—prevents rust and corrosion even over weekend shutdowns. It keeps needles and fabric *clean*, assures greater production.

You will also find *White Needle Oil B* an ideal lubricant for narrowing points, sinkers and light mechanisms of full-fashioned hosiery and warp knitting machines.

For Texaco Products and Engineering Service, call the nearest of the more than 2300 Texaco distributing plants in the 48 States, or write The Texas Company, 135 East 42nd Street, New York 17, N. Y.

TEXACO

TEXACO Lubricants

FOR THE TEXTILE INDUSTRY

TUNE IN THE TEXACO STAR THEATRE WITH JAMES MELTON SUNDAY NIGHTS ★ METROPOLITAN OPERA BROADCASTS SATURDAY AFTERNOONS

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TEXTILE WORLD

APRIL 1946 — VOLUME 96 NUMBER 4

A McGRAW - HILL PUBLICATION

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Published monthly. United States and Possessions and Latin American Republics, $1.50 a year; Canada and all other countries, $2 U. S. currency. Single copy, 25c. Please indicate position and company connection on all subscription orders. Annual Index in "Textile World Yearbook & Catalog."

McGRAW-HILL PUBLISHING CO., INC. Publication Office, 99 N. Broadway, Albany 1, N. Y. Editorial and Executive Offices, 330 W. 42nd Street, New York 18, N. Y.—JAMES H. McGRAW, *Founder and Honorary Chairman;* JAMES H. McGRAW, Jr., *President;* CURTIS W. McGRAW, *Senior Vice President and Treasurer;* HENRY G. LORD, *Vice President;* HOWARD EHRLICH, *Vice President and General Business Manager;* EUGENE DUFFIELD, *Editorial Assistant to the President;* J. A. GERARDI, *Secretary;* J. E. BLACKBURN, JR., *Vice President (for Circulation operations).*

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Of this issue 20,085 copies were printed

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THE *Long-Range* VIEW

MAKE READY—DO—PUT AWAY

Make ready, do, and put away. There are three elements to every job, not just one element—do—as is often supposed. It is true that many persons consider "make ready" and "put away" as part of the "do" operation and overlook some of the greatest opportunities for improvement possible today in textile manufacturing processes.

Almost always, a job that is being done is necessary. Almost always, some elements preceding or following a job are not. For example, the necessity for soaking rayon for use in crepe yarns is recognized as an essential operation. But in preparing the skeins for soaking, it is not necessary to shake them out as is almost universally done; nor is it necessary after soaking to run the skeins through a shaking machine, as is sometimes done.

It has been estimated that from 30 to 60% of the work in a textile mill consists of make ready and put away, and that half the human effort expended in these operations could be eliminated. There are two ways to eliminate much effort: omitting the operation, or improving the way it is done. Too often, improving the way a job is done is considered first; whereas it should be considered last.

Suppose, for example, that an operator is expected to put the bobbins she empties on a pin-board before they are transported to another department. It is often true that placing the bobbins on the pins of the board is unnecessary; the bobbins might just as well be dropped onto a conveyor which would take them (and possibly empty pin-boards) to the next department where they are needed.

This example was chosen to illustrate the necessity for analyzing even a simple job. Without an analysis in the example given, a materials-handling system for filled pin-boards might be decided upon. Such a system would save considerable handling but would not permit increased efficiency by the operator, such as always comes when a drop-delivery replaces a precise-delivery operation.

Since manpower shortages are holding back textile production and labor costs are rising, no textile mill can afford to overlook instances of unnecessary effort being expended. The immediate program should be to cut out useless operations or elements; the long range should be to replace necessary ones with machines, such as many mills are now doing with materials-handling systems.

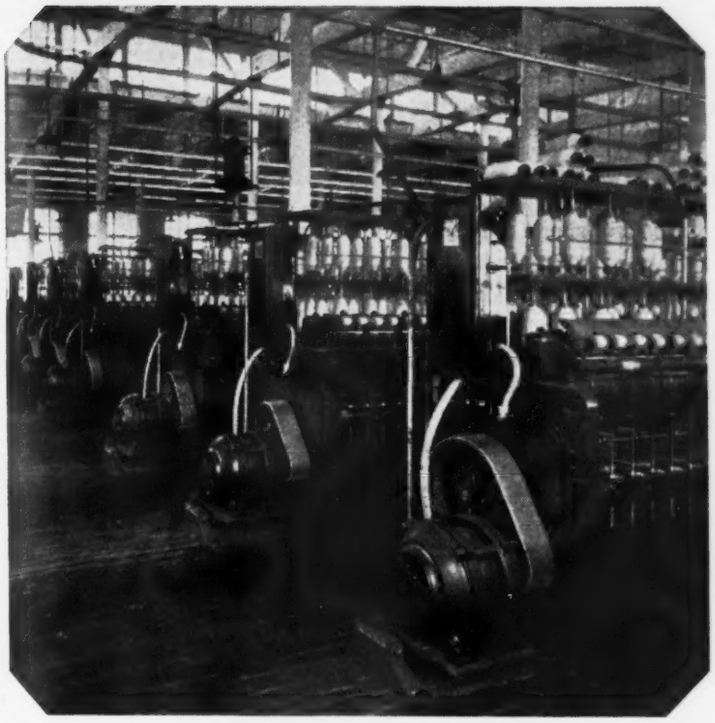
In looking for savings in make-ready and put-away operations, one should study a job thoroughly before expenditures are made for permanent equipment. At the very least, a flow plan should be made up and every element in it studied to be sure that each is necessary and that the way each is being done—or will be done—is the best possible.

A proper study will take time and, to be completely successful, must take into consideration the operatives involved. Quite often, operatives know, and use, short-cuts unknown to their supervisors. They have a fund of knowledge which arises from their intimate contact with their jobs and which should be utilized.

Unfortunately, employees used on make-ready and put-away operations are unskilled compared to those on do operations. The low wages they received in the past and the large number of persons available made it easier (and often cheaper) to employ such help than to invest in costly equipment. New wage levels and scarcity of help have changed this.

Considerable attention has been given in the past to improving production machinery—such as looms, which on filament rayon often operate at over 95% efficiency with less than 5% seconds—but relatively little has been given to the operations and equipment necessary to supply materials to production machines or to handle their products. The reason may be that make-ready and put-away operations must be specifically engineered for each mill; in fact, for each job. Such engineering and the resulting installation usually entail a considerable investment in dollars; but, actually, compared with the savings possible—say just a small percentage of labor costs—the expenditures can be most profitable.

C. H. Bendigo



Tannate-Rockwood

Automatically Controlled Tension

GIVES YOU

INCREASED OUTPUT, RELIABILTY and LOW MAINTENANCE

WHEN PLANNING YOUR RECONVERSION, REMEMBER THESE VITAL LINKS IN YOUR CHAIN OF PRODUCTION.

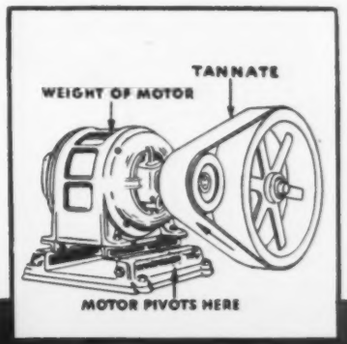
Whether driven from long or short centers, with group or individual drives—your machines are most reliably belted with TANNATE flat leather.

Tannate flat belt short center drives assure correct belt tension at all times—regardless of load, centers or unusual conditions; proper tension is automatically maintained. This means longer service life for your equipment. Adjustments can be made if necessary while the drive is running: production goes on smoothly without interruption.

Tannate leather belting has very high coefficient of friction and great pliability that helps keep your machines running at full capacity; this means increased output at lowered unit cost. It has high tensile strength which contributes toward increased service life, and lower end cost for your belting.

Tannate is treated to resist moisture, oil and weak acids: it stays on the job requiring little maintenance.

Let us help you get the most from your machines—with Tannate flat leather belting.



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Established 1702 **NEW YORK • CHICAGO • ATLANTA**

RHOADS

Tannate-Rockwood

SHORT CENTER DRIVE

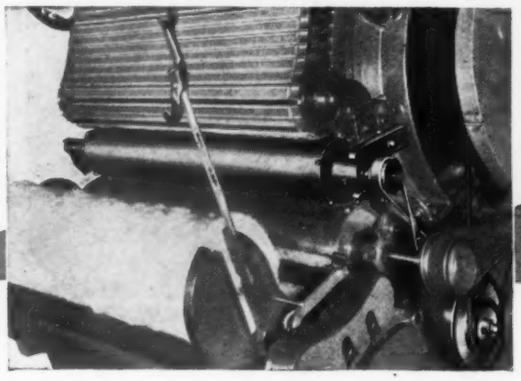
Extra Cleaning at No Additional Operating Cost

. . . an advantage which no mill can overlook today

Buyers of yarns and fabrics are becoming more and more critical of imperfections such as neps, peppery leaf and broken seed fragments in their goods.

One of the well-known mills in the "quality class" has recently completed a series of tests on the Saco-Lowell Continuous Stripper and Waste Control Screen which have been in operation in their mill for the past year. They found that in addition to the extra cleaning effected by this equipment the return on their investment in one year was approximately 86%.

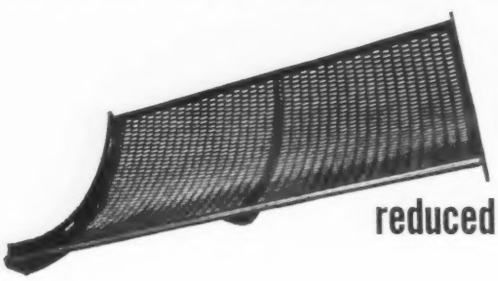
A survey of your plant might show how the Continuous Stripper and Waste Control Screen could also be of definite advantage to your mill.



investment in the **Continuous Stripper** returned in one year **86%**

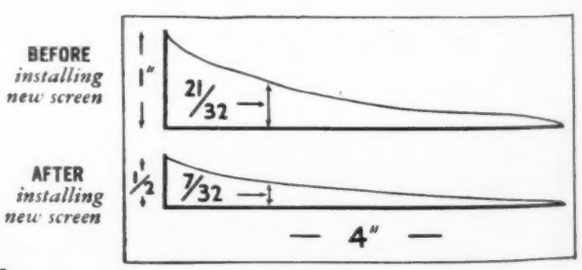
Waste Control Screen reduced neps **39%**

BEFORE *installing new screen*	.780 neps *per sq. inch*
AFTER *installing new screen*	.481 neps *per sq. inch*



reduced foreign matter **26%**

reduced mean staple length in fly **67%**

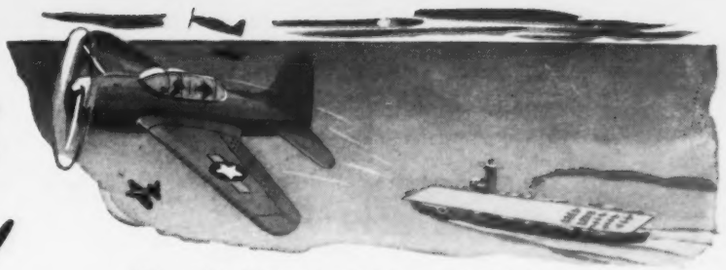


Saco-Lowell Shops

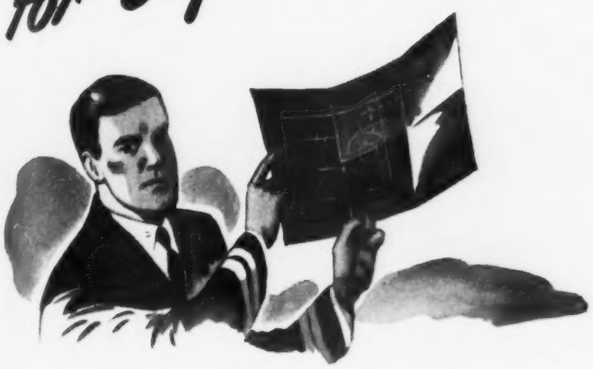
BOSTON, MASSACHUSETTS

Charlotte Greenville Atlanta

Getting Navy Planes into Air Fast was Job for "Super" Motors!

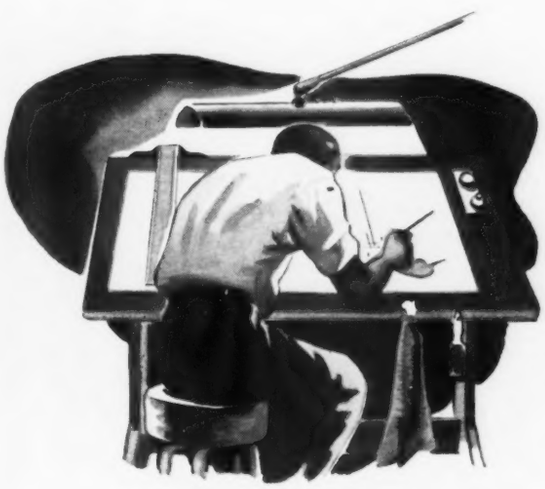


"What We Want" said Navy, "are ½-hour rated elevator motors that'll lift planes from carrier hangar decks, up at 42 ft, down at 52 ft a minute. And they must be exceptionally dependable—under all conditions—because these planes have to be in the air when we need 'em!"



"Look, Here's What We're Using Now. Two standard winch motors on each elevator . . . doing a good job too. But we want something better. Because *two* motors mean extra space, weight and repairs — things we've got to cut down for more important ordnance."

Whew! High elevator speed, low motor speed . . . stronger . . . lighter . . . smaller — this'll take 6 months to design! Then we rolled up our sleeves, tackled first the problem of developing extremely high torque for fast starting under load — solved it with a special field.



How To Get Light Weight — yet maintain the generous motor design for which we are famous — presented still another problem. This one we solved by skilful substitution of copper for steel . . . of war-proved fabrication for casting. Yes, we cut down weight *and* maintained ample, generous design!

Came the Big Surprise! After we put on finishing touches — special corrosion-resistant marine parts, new kind of insulation — we added up design time . . . just one month! And much-needed motors were rolling off the lines less than 4½ months later.

A 1998

Significance: The creative engineering that goes into solving *special* motor problems, like this one, also points out new ways to build better *standard* motors for you! Watch for these new and better motors from A-C. ALLIS-CHALMERS, MILWAUKEE 1, WISCONSIN.

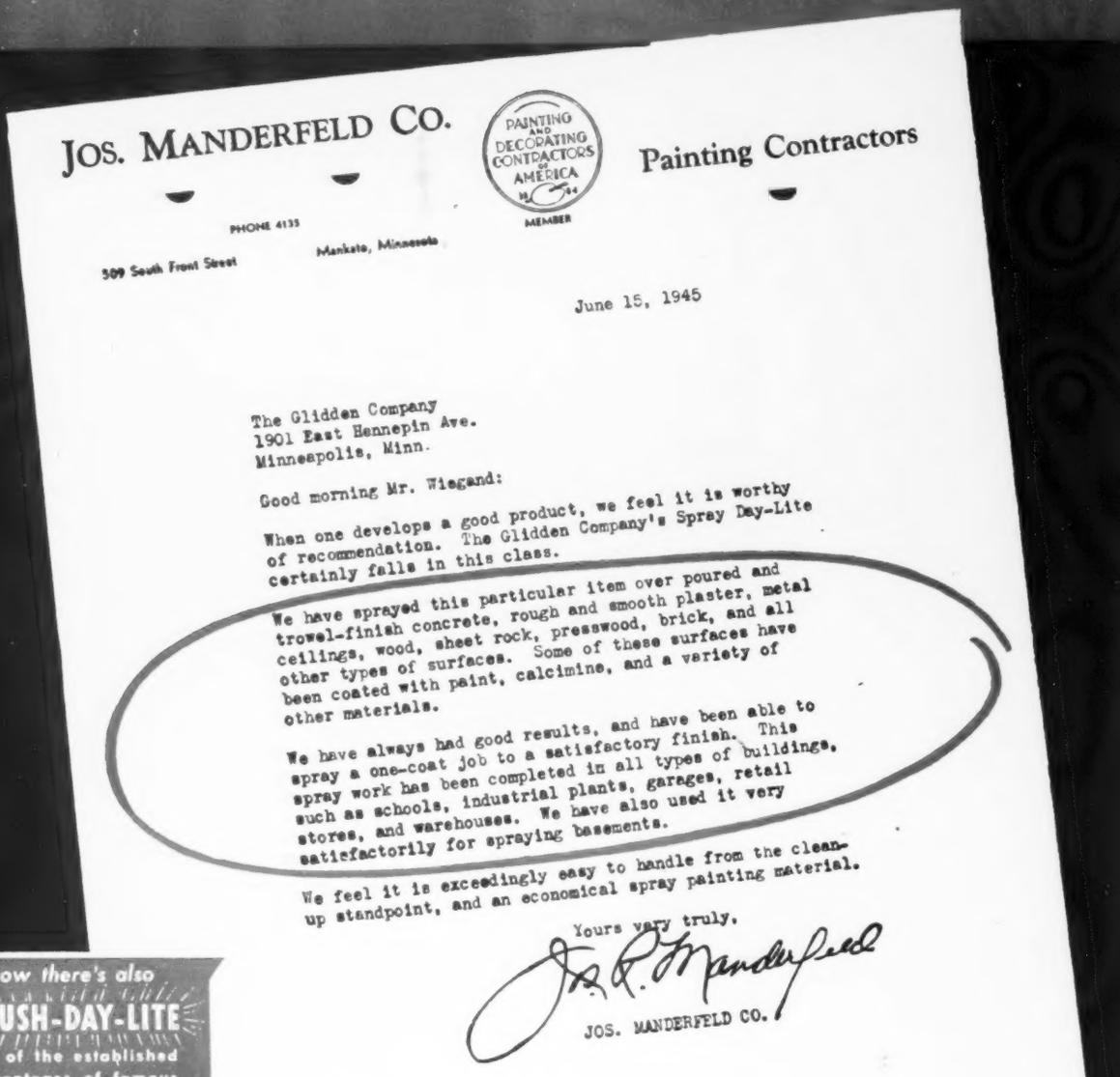
Wait 'til you see the NEW

ALLIS-CHALMERS MOTORS!

HEAR THE BOSTON SYMPHONY: *Every Saturday Evening, American Broadcasting Co.*

The Painting Contractor speaks!

Perfect one-coat jobs with . . .



JOS. MANDERFELD CO.

Painting Contractors

PAINTING AND DECORATING CONTRACTORS OF AMERICA MEMBER

PHONE 4133

309 South Front Street Mankato, Minnesota

June 15, 1945

The Glidden Company
1901 East Hennepin Ave.
Minneapolis, Minn.

Good morning Mr. Wiegand:

When one develops a good product, we feel it is worthy of recommendation. The Glidden Company's Spray Day-Lite certainly falls in this class.

We have sprayed this particular item over poured and trowel-finish concrete, rough and smooth plaster, metal ceilings, wood, sheet rock, presswood, brick, and all other types of surfaces. Some of these surfaces have been coated with paint, calcimine, and a variety of other materials.

We have always had good results, and have been able to spray a one-coat job to a satisfactory finish. This spray work has been completed in all types of buildings, such as schools, industrial plants, garages, retail stores, and warehouses. We have also used it very satisfactorily for spraying basements.

We feel it is exceedingly easy to handle from the clean-up standpoint, and an economical spray painting material.

Yours very truly,

Jos. R. Manderfeld

JOS. MANDERFELD CO.

JRM:rr

Now there's also

BRUSH-DAY-LITE

All of the established advantages of famous GLIDDEN SPRAY-DAY-LITE are now offered you in BRUSH-DAY-LITE, especially formulated for brush application.

WALLPAPER — PICTURE FRAMING — PAINTS — FLOOR SANDING — GLASS

A Better Painted Surface is a Better Protected Surface

Glidden

SPRAY-DAY-LITE

Painting work in a building being done by Jos. Manderfeld Company painters using Glidden SPRAY-DAY-LITE.

On any surface in any kind of building — this famous Glidden paint will give you better results every way!

Painters *know* paint! So when prominent painting contractors like the Jos. Manderfeld Company—and numerous others—say SPRAY-DAY-LITE is tops from every standpoint, you owe it a trial. Use it once and we think these six big advantages will make you a permanent user . . .

1. **SPRAY-DAY-LITE gives conventional two-coat results in only one coat.**
2. **Increases lighting efficiency by giving *maximum* light reflection and diffusion.**
3. **Provides smooth, solid covering over grimy, dirty and badly discolored surfaces of almost any type.**
4. **Its intense white does not yellow with age—also available in 10 beautiful colors.**
5. **Durable, egg-shell finish eliminates eye-straining glare—washes like tile.**
6. **Sprayed or brushed, it does not sag or run; produces little fog or mist when sprayed.**

TIME-TESTED

Fill out and mail the coupon *today* for SPRAY-DAY-LITE Color Chart, demonstration, or both.

THE GLIDDEN COMPANY, Dept. T-4
11001 Madison Ave., Cleveland 2, Ohio

☐ You may send your new SPRAY-DAY-LITE Color Chart showing the 10 beautiful shades and suggested color combinations.

☐ You may have representative call and demonstrate SPRAY-DAY-LITE in our premises without obligation on our part.

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CITY AND STATE _____

Pacemaker in Paints

you needn't sacrifice QUALITY now to get WOOL STABILITY

Most woolens producers today are familiar with treatments for stabilizing their product to get better dimension control, better washability, better all-around service.

But many have hesitated to go ahead with these treatments because the treated fabric was noticeably harsher in hand.

Now, for the first time, Monsanto offers a new melamine type treatment, Resloom, that overcomes this objection.

Woolens treated with concentrations of as much as 20% Resloom retain all the natural wool beauty; they are soft, full bodied, and basically superior products in both handle and stability to untreated woolens or woolens treated with former chemicals.

UNDER MILL STUDY

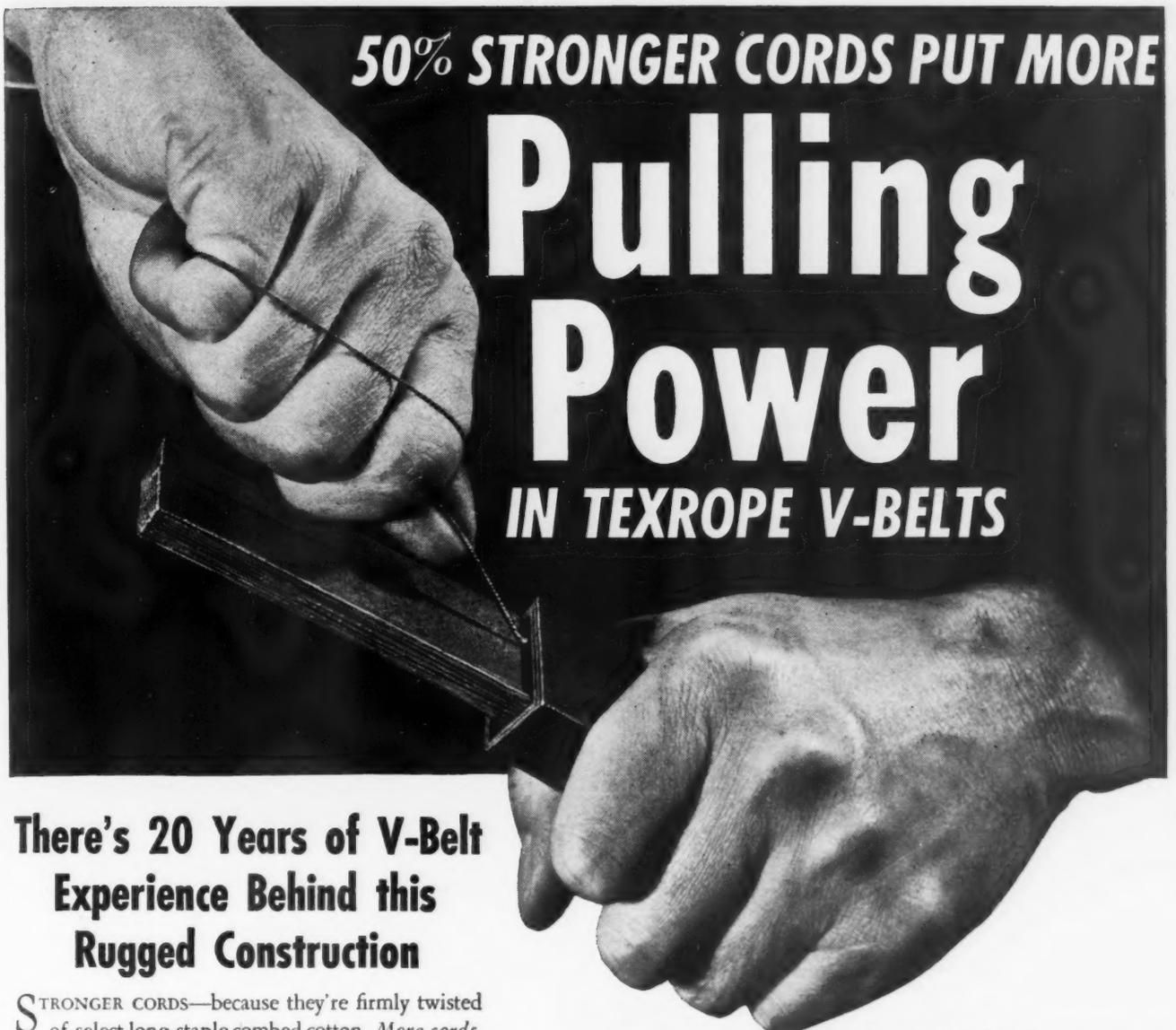
Since Resloom builds up a fabric from 10% to 20%, new fabrics are being constructed that actually make Resloom a part of the finished fabric. As our capacity increases we will be enabled to serve more and more mills — possibly yours. Meanwhile we will be glad to send technical data, samples or answers to your specific questions; simply address: MONSANTO CHEMICAL COMPANY, Everett Station, Boston 49, Massachusetts.

EVEN EXPERTS fail to find any harshness and difference in the appearance or handle of woolens treated with 20% Resloom and the natural, untreated fabric. But buyers will not be long in appreciating the shrinkage control, the added long-time serviceability!

Resloom: Reg. U. S. Pat. Off.

MONSANTO
CHEMICALS AND PLASTICS

The Textile
SERVING INDUSTRY...WHICH SERVES MANKIND



50% STRONGER CORDS PUT MORE Pulling Power IN TEXROPE V-BELTS

There's 20 Years of V-Belt Experience Behind this Rugged Construction

STRONGER CORDS—because they're firmly twisted of select long-staple combed cotton. *More cords,* too — accurately placed to carry heavier loads, and impregnated with gum rubber to absorb friction and heat.

Texrope "Super-7" V-Belts today are the finest in 20 years of continuous development by Allis-Chalmers—originator of the multiple V-Belt drive.

LONG WEARING — COOL RUNNING

Tough duplex cover to take the wear, keep the belt in shape. *Thick cushion* of war-proved Buna-S to protect the cord structure from shock. *Precision molding* to assure accurate section and a smooth running belt. For long service and highest efficiency on ALL V-Belt drives — make A-C your V-Belt headquarters! ALLIS-CHALMERS, Milwaukee 1, Wis.

WHICH OF THESE SUPER-7 V-BELTS DO YOU NEED

TEXROPE offers you the most complete line of V-Belts — types specially developed to meet ALL operating conditions. Pick the right TEXROPE Super-7 V-Belt — it'll give you the most in efficient power transmission.

Heat-Resisting Super-7
Stands temperatures up to 180°. The TEXROPE V-Belt for most drives.

Oil-Resisting Super-7
Neoprene cover protects core against moderately oily or greasy conditions.

Oil-Proof Super-7
Made of Neoprene throughout. Use it when the belt must swim in oil.

Static-Resisting Super-7
Recommended where explosion hazard exists. Static-conducting element throughout cover won't wear off.

Super-7 Steel
Twin steel cables, to pull extremely heavy loads with minimum stretch.

GET THEM — through your Allis-Chalmers district office or dealer.

TEXROPE Super-7 V-Belts result from the cooperative research of two great companies—Allis-Chalmers and B. F. Goodrich—and are sold exclusively by A-C.

V-BELTS
TEXROPE complete line — Sizes, types for every power transmission problem and condition.

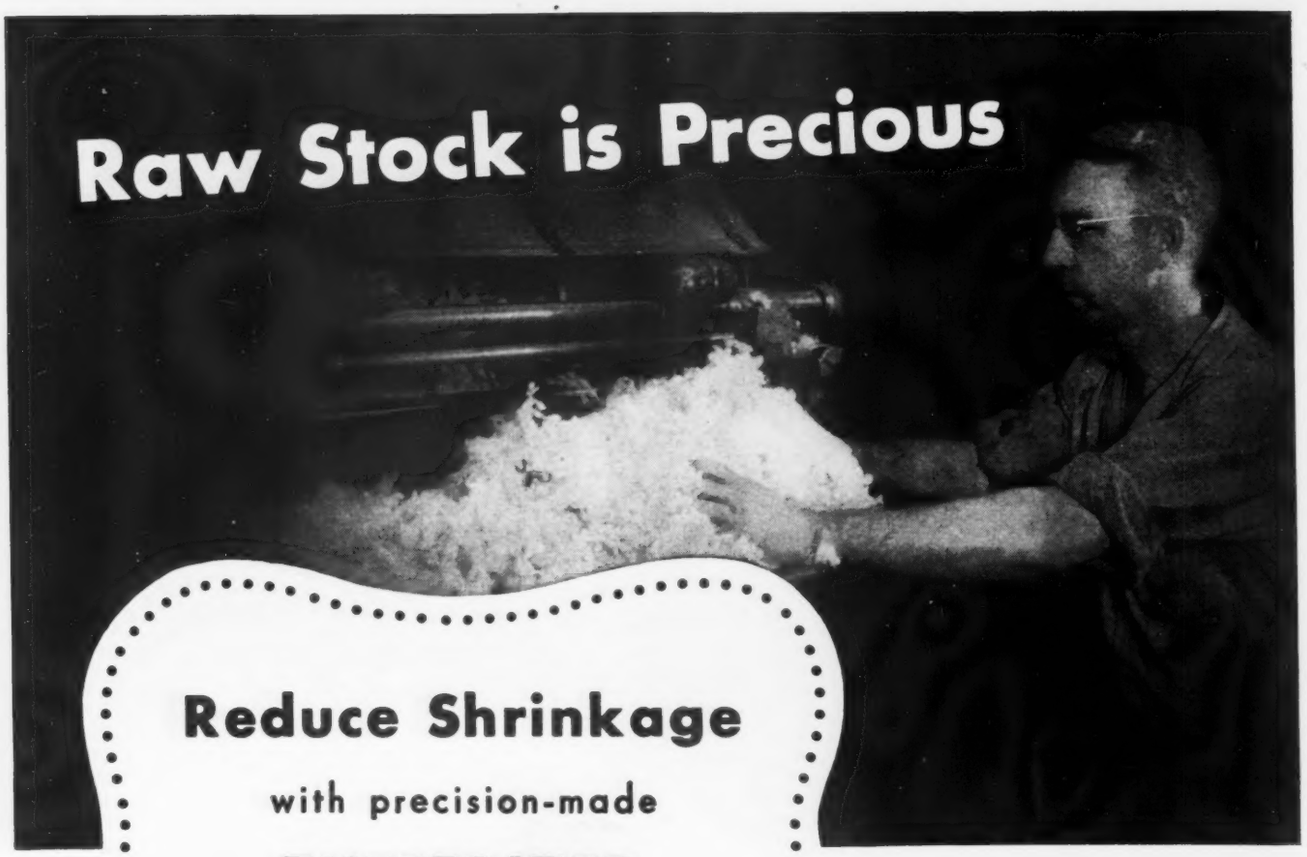
ALLIS CHALMERS
TEXROPE V-BELT DRIVES
ORIGINATORS OF THE MULTIPLE V-BELT DRIVE

SHEAVES
"MAGIC-GRIP" . . . TEX-STEEL . . . TEXDRIVE . . . Speed changers and VARI-PITCH sheaves.

HEAR THE BOSTON SYMPHONY: *Every Saturday Evening, American Broadcasting Co.*

A 2009

Raw Stock is Precious



Reduce Shrinkage

with precision-made

TUFFERIZED
CARD CLOTHING

IF YOUR card clothing is worn, or ground down so it does not give the proper carding action *your losses in raw stock may be serious.*

Tufferized Card Clothing, properly operated, will reduce these losses and convert them into strong, uniform yarns.

Have a Howard representative examine your card clothing. He will help you determine whether waste is excessive and make suitable recommendations.

TUFFER

TUFFER PRODUCTS

Card Clothing for Woolen, Worsted, Cotton, Asbestos and Silk Cards • Napper Clothing, Brush Clothing, Strickles, Emery Fillets. Top Flats Recovered and extra sets loaned at all Plants. Lickerins and Garnet Cylinders from 4 to 30 inches and Metallic Card Breasts Rewired at Southern Plant • Midgley Patented, and Howard's Special Hand Stripping Cards • Inserted Eye & Regular Wire Heddles

HOWARD BROS. MFG. CO.

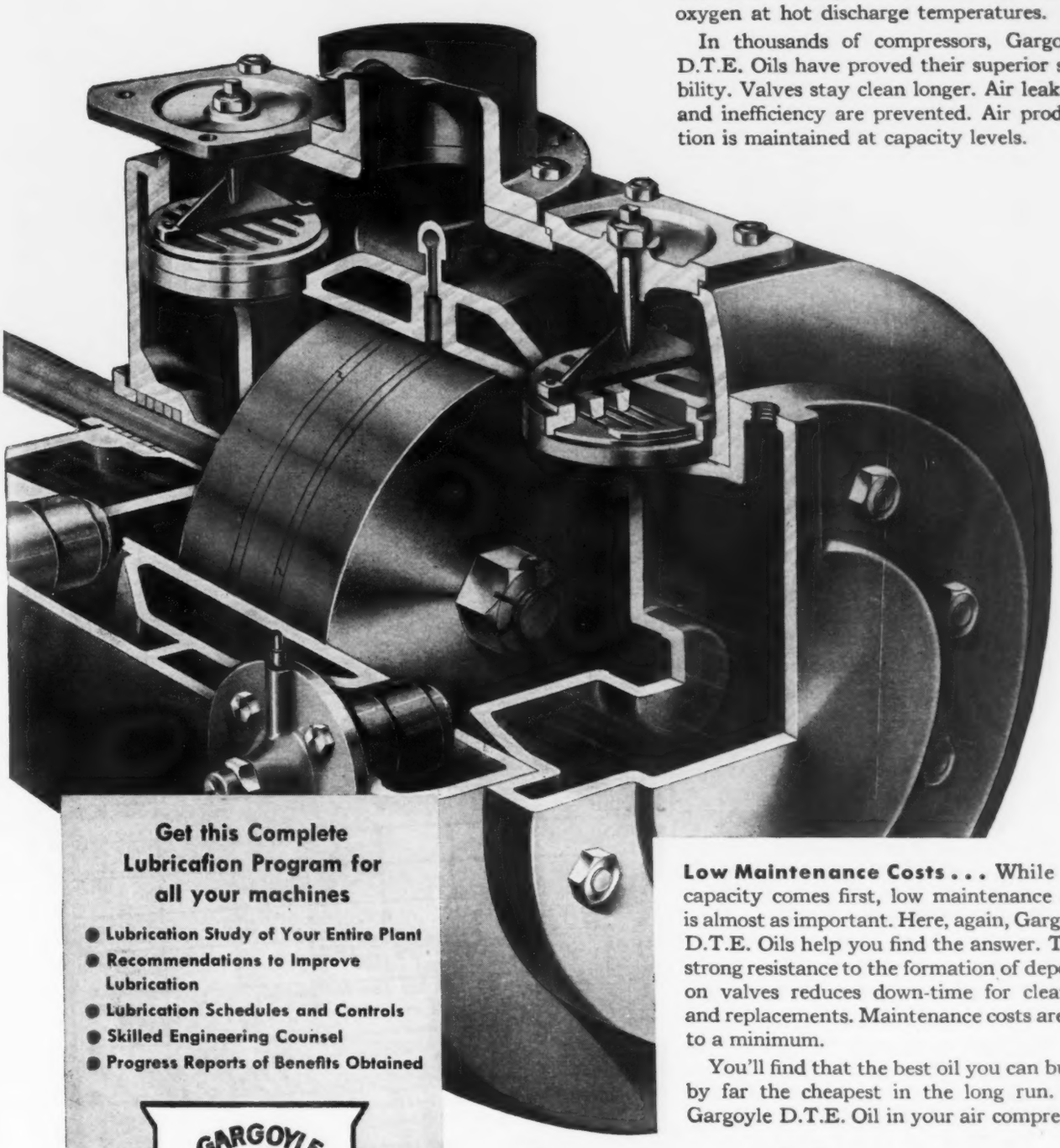
WORCESTER, MASSACHUSETTS

Southern Plants: Atlanta, Ga., Gastonia, N. C. **Branch Offices:** Philadelphia, Pa., Blanco, Tex. **Canadian Agents:** Colwool Accessories, Ltd., Toronto 2

What do you expect from your Compressor?

Continuous Full Power . . . For maximum efficiency, your air compressor valves must stay free from clogging oxidation deposits. This calls for a compressor oil with high chemical stability to resist the attacks of oxygen at hot discharge temperatures.

In thousands of compressors, Gargoyle D.T.E. Oils have proved their superior stability. Valves stay clean longer. Air leakage and inefficiency are prevented. Air production is maintained at capacity levels.



Low Maintenance Costs . . . While full capacity comes first, low maintenance cost is almost as important. Here, again, Gargoyle D.T.E. Oils help you find the answer. Their strong resistance to the formation of deposits on valves reduces down-time for cleaning and replacements. Maintenance costs are cut to a minimum.

You'll find that the best oil you can buy is by far the cheapest in the long run. Get Gargoyle D.T.E. Oil in your air compressor.

Get this Complete Lubricafion Program for all your machines

- Lubrication Study of Your Entire Plant
- Recommendations to Improve Lubrication
- Lubrication Schedules and Controls
- Skilled Engineering Counsel
- Progress Reports of Benefits Obtained

GARGOYLE
Lubricants

Socony-Vacuum Oil Company, Inc.

and Affiliates: Magnolia Petroleum Co., General Petroleum Corp. of Calif.

Tune in "Information Please"—Monday Evenings, 9:30 E.S.T.—NBC

Accurate, Legible

WAGE-HOUR RECORDS-

from each employee

There is nothing for the employee to do but insert and remove his card. The recorder automatically prints the time in the proper place. The card shown is one of many types available.

•

With IBM Attendance Recorders, mills large and small have found that these unquestionably accurate machines quickly pay for themselves in definite savings. Each employee becomes his own timekeeper, supplying an authoritative record of the actual time worked.

Electric Punched Card Accounting Machines and Electromatic Typewriters are additional aids in swift, accurate payroll accounting.

An IBM representative will be glad to provide full information about this and other time-saving IBM equipment.

PAY PERIOD ENDING 2/15/46

NO. 115

NAME JOSEPHINE MC CALL

WITH-HOLDING TAX CLASS 2

R.T. HOURS 40	RATE .76	AMOUNT 30.40	WITH-HOLDING TAX 2.10	TOTAL EARNINGS 33.82
O.T. HOURS 3	RATE 1.14	AMOUNT 3.42	FEDERAL O.A.S.I. .34	TOTAL DEDUCTIONS 6.19
HOURS 43		AMOUNT 33.82	STATE U.C.	BALANCE DUE 27.63
		TAX EXEMPT.	BONDS 3.75	
		TAXABLE BAL.		

	1st DAY	2nd DAY	3rd DAY	4th DAY	5th DAY	6th DAY	7th DAY	
16								
15					FR 20 30			
14					FR 17 33			
13								
12	Σ 17 01	Σ 17 00		Σ 17 03	FR 17 04			
11			Σ 16 59					
10								
9								
8								
7		Σ 12 59	Σ 12 58	Σ 12 58	FR 13 00			
6		Σ 12 00	Σ 12 01	Σ 12 04	FR 12 02			
5	Σ 11 58							
4	Σ 11 00							
3								
2		Σ 8 01						
1	Σ 8 00		Σ 8 00	Σ 7 59	FR 7 58			
Daily Totals	8 -	8 -	8 -	8 -	11 -			43

Balance due shown above is correct and receipt is acknowledged Josephine McCall Signature

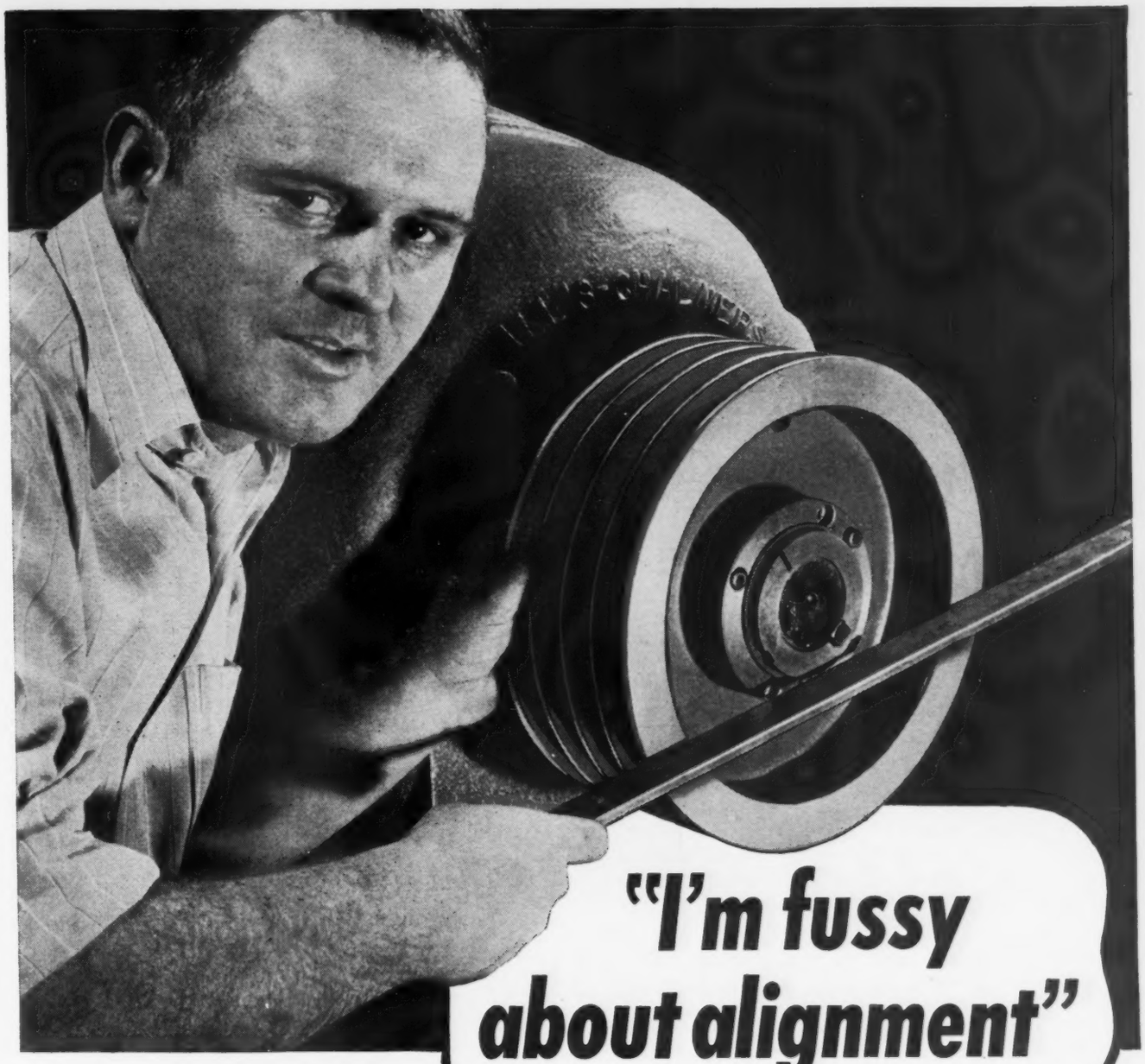
PRESS OF INTERNATIONAL BUSINESS MACHINES CORP., ENDICOTT, N.Y., U.S.A.

This card is one of many types available

IBM

INTERNATIONAL BUSINESS MACHINES CORPORATION

World Headquarters Building · 590 Madison Avenue · New York 22, N. Y.



"I'm fussy about alignment"

TEXROPE "MAGIC-GRIP" SHEAVES make the job easy!

JUST slide it on the shaft — move it into exact alignment, using a straightedge if desired — then tighten three cap screws. It's easy as that.

Sheave and bushing come completely assembled. No hammering, no filing or reaming. The patented "Magic-Grip" Sheave gives a powerful clamp fit without backlash, shear or wobble. Yet it can be taken off as easily as it goes on.

You save manhours and money the first time you mount a Texrope "Magic-Grip" sheave — and every time after. In addition, there are no set screws to score shaft. And because you don't *hammer* it on, you can't damage motor bearings!

These advantages cost you nothing extra. For details call your A-C office or dealer, or write for Bulletin B6310. ALLIS-CHALMERS, MILWAUKEE.

V-BELTS

TEXROPE complete line — Sizes, types for every power transmission problem and condition.

ALLIS CHALMERS

TEXROPE V-BELT DRIVES

ORIGINATORS OF THE MULTIPLE V-BELT DRIVE

SHEAVES

"MAGIC-GRIP" . . . TEX-STEEL . . . TEXDRIVE . . . Speed changers and VARI-PITCH sheaves.

HEAR THE BOSTON SYMPHONY: *Every Saturday Evening, American Broadcasting Co.*

A 2008

Wrinkles to iron out?

Mrs. Jones smooths out the wrinkles in her velvet gown by hanging it over a steaming tub of water. By humidifying the air, she takes advantage of a crude form of air conditioning.

Scientific, year-round air conditioning—the Carrier kind—is ironing out countless wrinkles for industry. In textile plants, for example, the humidity is controlled to prevent yarn breakage, reduce the amount of "fly" in carding and keep machinery adjustments at a minimum. In plants making precision parts, the air is held at specified humidity and temperature. Where excessive heat would interfere with processes, the air is cooled. Employee efficiency and production are kept high.

The right kind of air conditioning takes superior engineering skill. That's why Carrier has long been the air conditioning leader . . . helping the textile industry improve output and products for 40 years. Why not ask Carrier about the operations now giving you trouble? Carrier Corporation, Syracuse, New York.

Carrier

AIR CONDITIONING
REFRIGERATION
INDUSTRIAL HEATING

SANDOZ PRESENTS *the color achievement of the month*

Springtime Aqua BY PACIFIC MILLS

Captured here is the very spirit of spring — the promise of clear bright days that come when nature has made its change and invites you outdoors.

It's a long-jacketed, hip-swathing costume suit, deep-cuffed in fox-tail. Pacific Mills provided the new cross-rib fabric — 100% wool strengthened with worsted warp.

Fabrics like this one owe much of their appeal to color — and the Pacific Mills depend, for color-correctness, on suppliers like Sandoz. *Thinking ahead with textiles*, Sandoz laboratories keep one step ahead of the fashion parade and another step ahead in technical progress . . . thus assuring you of fashion-right and technically dependable colors. For example, such acid colors as Alizarine Light Blue 4GL (Pat.) and Alizarine Light Violet 2RC (Pat.), exclusive colors of Sandoz which are level dyeing and very fast to light.

For acid, chrome or direct dyes . . . or auxiliary chemicals . . . for both natural and synthetic fibres . . . you'll find the "color achievements" you see in these Sandoz advertisements a reliable guide to your needs. Sandoz application laboratories are located in New York, Boston, Philadelphia, Charlotte, Los Angeles, Toronto, where stocks in wide range are carried. Other branches are in Chicago, Paterson and Providence.

SANDOZ CHEMICAL WORKS, INC., 61 VAN DAM STREET, NEW YORK 13, N. Y.

SANDOZ *thinks ahead with textiles*

S SANDOZ

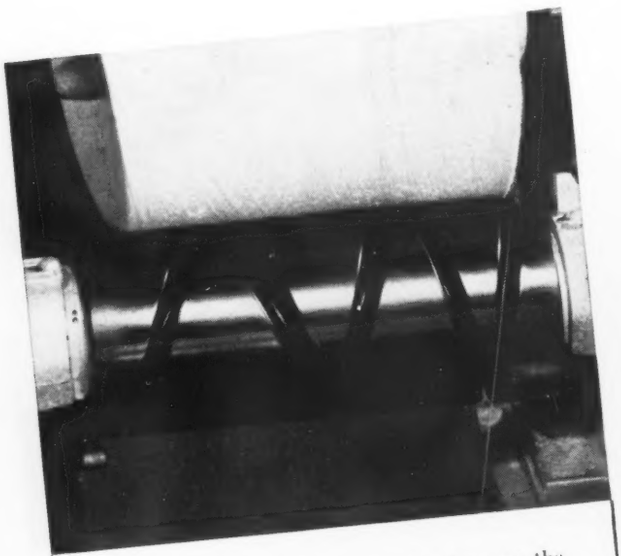
CONES that simplify knitting... from a MACHINE that simplifies winding

Knitting mills prefer Roto-Cones because they eliminate press-offs that result from stitches, roll cuts, and yarn sloughing-off. Spinning mills like Roto-Coners* because they are easy to operate and easy to maintain.

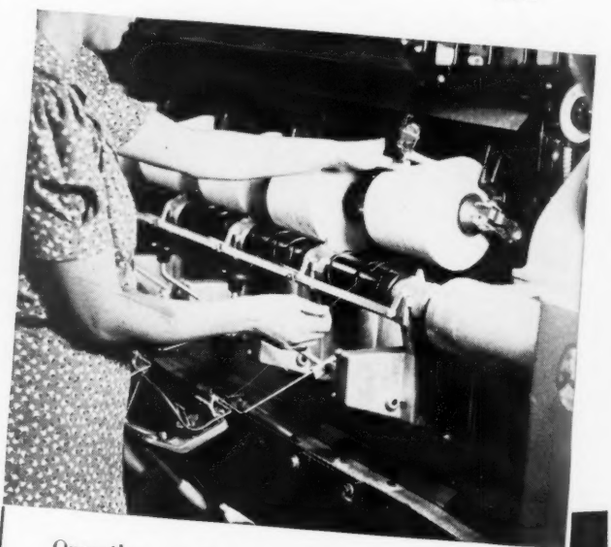
To give your customers paper cones of yarn that will satisfy them in every respect ... to put your winding room on the most economical basis . . . consider the Roto-Coner* — the high-speed winding machine with the exclusive Rotary Traverse. Write for Bulletin 144, addressing Universal Winding Company, Providence, Boston, Philadelphia, Utica, Charlotte, Atlanta.

*Reg. U. S. Pat. Off.

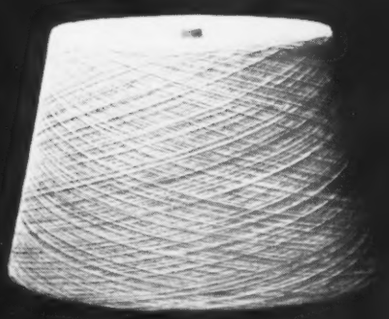
23-5-16



Roto-Cones are free from stitches because the groove in the Rotary Traverse reverses the yarn quickly at the ends of the traverse . . . are free from cut yarn because the Rotary Traverse is a smooth, one-piece combination driving drum and yarn guide . . . will not slough off because the steep-angled lay of yarn (the same for all yarn counts) insures free delivery at all package diameters.



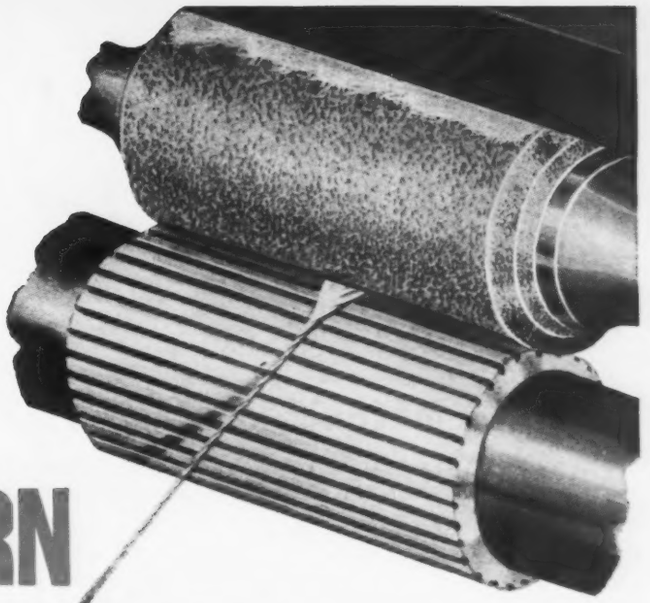
Operation of the Roto-Coner* is extremely simple. The machine is quiet, controls are conveniently located, adjustments are few. The Rotary Traverse is standard for all yarn sizes, and no reduction in speed is needed when changing to coarser counts. There are no cams or fast-wearing reciprocating parts to be lubricated. Maintenance is held to a minimum, running to about ½ of 1% of investment cost per year.



ROTO-CONER* LEESONA REG. U.S. PAT. OFF.

Open-Wind Cones for Knitting

WARPING CONES • DYEING PACKAGES • PARALLEL TUBES FOR TWISTING



STRONGER YARN

. . . because this cork cot DRAFTS UNIFORMLY

You get uniform drafting when you run on Armstrong's Cork Cots. Cork never slicks up, retains its superior grip throughout its entire service life. Thus these cots produce stronger, more uniform yarn.

Moreover, the consistently high friction of these cots eliminates eyebrowing. Clearer waste is placed back on the clearer boards where it belongs. This means fewer slubs in the yarn . . . less clearer picking.

Armstrong's Cork Cots are extraordinarily resilient, "come back" quickly after pressure by top roll laps or hard ends. They have no hard or soft spots to grip the yarn unevenly. And they maintain a true drafting surface because they do not flow under roll weighting.

These cots keep all these exceptional spinning qualities throughout a long initial life. When they do show signs of wear, they can be rebuffed—made like new—for three or four *extra* service lives. Each rebuffing costs as little as one half cent per roll.

See your Armstrong representative for the full story on how Armstrong's Cork Cots can help you produce better running work and increase poundage. Or write today to Armstrong Cork Company, Textile Products Department, 8304 Arch Street, Lancaster, Pennsylvania.

ARMSTRONG'S CORK COTS ARE

- LONG-LIVED
- HIGHLY FRICTIONAL
- EXTRA RESILIENT
- UNIFORM
- SEAMLESS
- TRULY COMPRESSIBLE
- IMPERVIOUS TO OILS AND DYES

BETTER RUNNING WORK

— MORE POUNDAGE

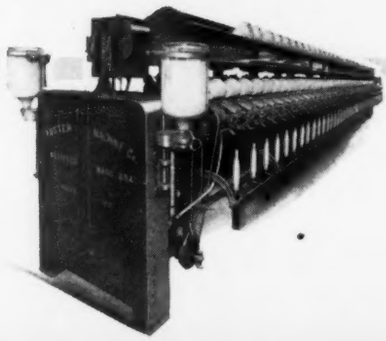
ARMSTRONG'S CORK COTS

ACCOTEX COTS • ACCOTEX APRONS

FOSTER

MODEL 102

For Winding Worsted Yarn



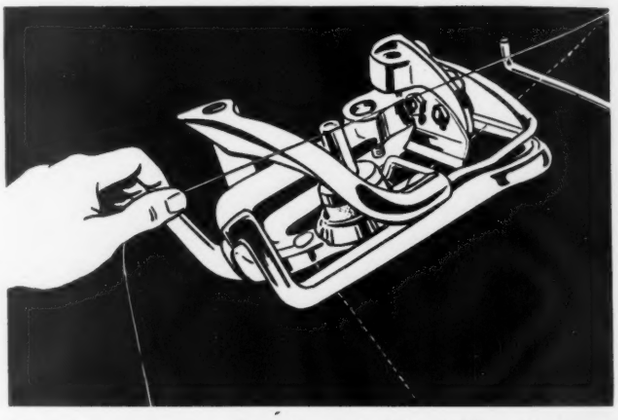
HOW THIS MACHINE INCREASES PRODUCTION AND LOWERS MAINTENANCE & REPAIR COSTS

INCREASED PRODUCTION FEATURES — 7″ traverse cone (if desired), reducing doffing and handling. • Self-threading tension and slub-catching device. • Minimum tension on soft twist yarns, reducing breakage • Empty bobbin conveyor BELOW bobbin pins, eliminating lifting. • Conveyor discharges into standard sized truck, eliminating rehandling. • Double conveyors when different bobbins are used on each side. • Cone holder swings out, saving time when doffing. • High winding speed which contributes to twice the production with 1/3 saving in operating cost.

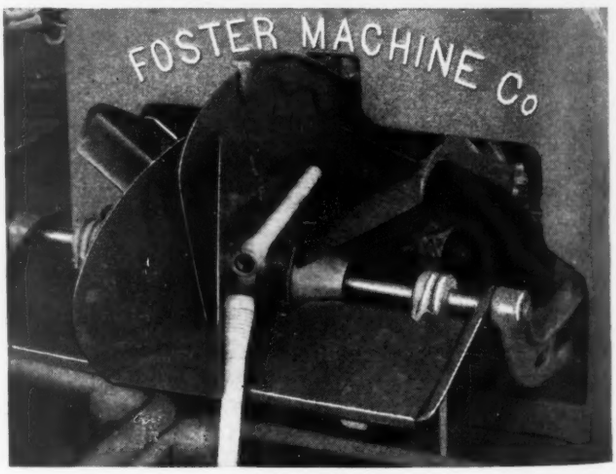
LOW MAINTENANCE FEATURES — Like all Foster Machines, Model 102 is rugged, reducing vibration and wear. • All parts in contact with yarn are of hardened steel or porcelain, minimizing cutting and grooving. • The right metal in the right place in all other instances. • Repair costs run as low as $3.50 per year per 100 spindle machine.

PLUS FLEXIBILITY — This machine will wind both soft twist and hard twist yarns, — any count or type, on warping cones, knitting cones, parallel tubes, dye packages, or twister packages, — any taper and any angle of wind from 9° to 18°, — 6″ or 7″ traverse.

Bulletin A-95 on request.



One of several types of tension and slub-catching attachments available. Drop yarn on top between arms and thread automatically seeks position indicated by dotted lines.



Empty bobbin conveyor discharging directly into standard sized truck. This is possible because belt runs up at end of machine. No rehandling of small boxes.

FOSTER MACHINE CO.

WESTFIELD, MASS., U. S. A.

Southern Office, Johnston Bldg., Charlotte, N. C. Canadian Rep., Ross Whitehead & Co., Ltd., University Tower Bldg., 660 Ste. Catherine St., W., Montreal, Que.

"Yes, this Flintkote material is
Just what we've been looking for"
"I'm glad you sent that Flintkote man down to the lab, J. D. He knew just what we needed.
"It seems he had worked out problems like ours before. We tried his recommendation in a pilot run yesterday, and it worked perfectly.
"Let's remember that fellow in the future. He told me that Flintkote makes a complete line of Syntex* rubber dispersions and compounded latices for cementing, laminating, coating, impregnating and saturating. He'll probably be able to help us again."

Flintkote products are used widely in the textile industry today.

In many cases, Flintkote Service Technicians first studied requirements thoroughly. Then the Flintkote Research Laboratory worked with the user to develop a better, quicker, or less costly way to do the job.

This widely varied background of experience is at your service. Send us full details of your cementing, laminating, coating, impregnating or saturating problems and we'll be glad to give you specific recommendations.

*Reg. U. S. Trade Mark of Flintkote's Rubber Dispersions

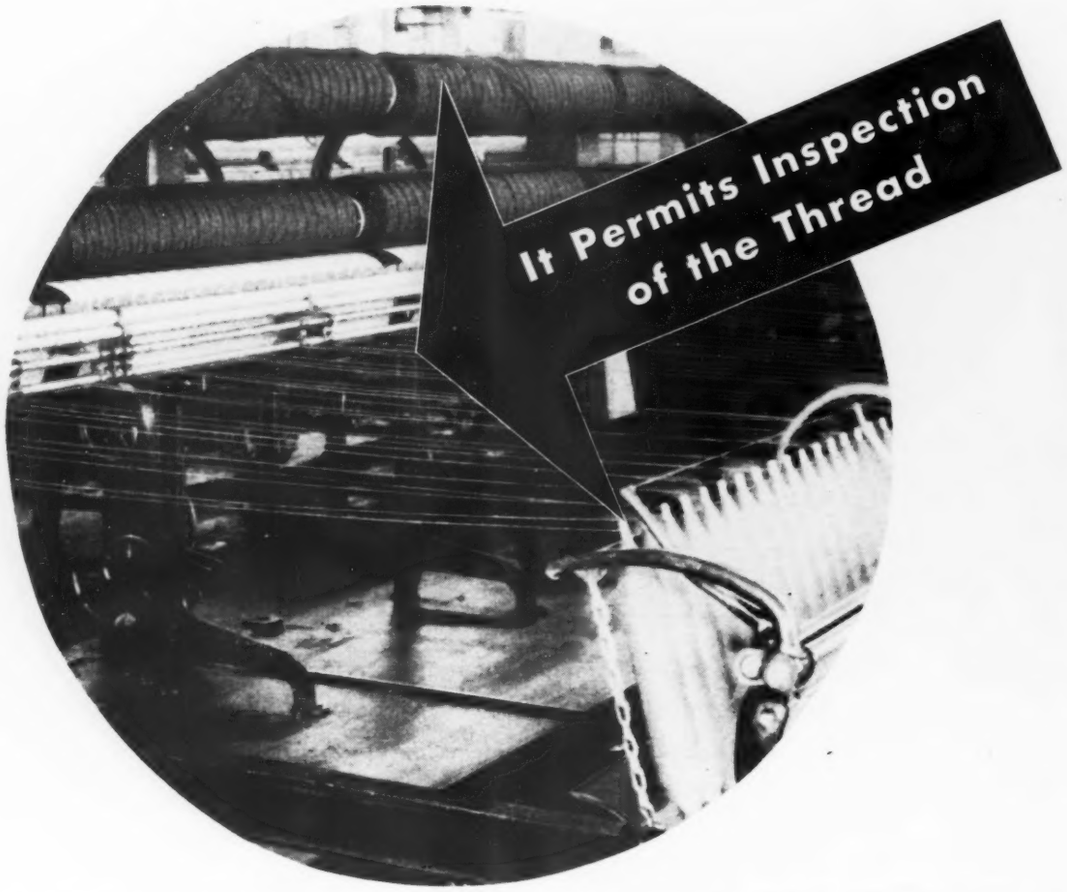
Flintkote-Products for Industry

THE FLINTKOTE COMPANY • INDUSTRIAL PRODUCTS DIVISION
Atlanta • Boston • Chicago Heights • Detroit • Houston

FLINTKOTE INDUSTRIAL PRODUCTS

30 ROCKEFELLER PLAZA, NEW YORK 20, N. Y.
Los Angeles • New Orleans • Washington • Toronto • Montreal

THE J & B MODERNIZED MULE



THAT'S BECAUSE of the long drafting zone,—74" to 76" as compared with 12" to 18" on a frame. And there's nothing in this drafting zone to obscure the view of the operator; imperfect thread and broken ends can be readily seen and corrected.

This is particularly important in the case of filling, when the mill weaves direct from spinning bobbins without rewinding.

This longer drafting zone also permits the J & B Mule to handle a coarser roving than any frame (thereby increasing production at the card up to 20%) and to produce a more even yarn. This mule twists to some extent while it drafts; the twist enters the thin places first, slowing up the draft at those points until the thicker portions of the roving are reduced in size.

And don't overlook the 9 other advantages of the J & B Mule, which are none the less important because of their repetition.

JOHNSON & BASSETT, INC.

ESTABLISHED 1870

WORCESTER, MASSACHUSETTS, U. S. A.

Export Office, 50 Church Street, New York 7, N. Y.

9 MORE ADVANTAGES

1. It will successfully spin short staple roving which will not hold together on a frame.
2. It requires less horsepower than a frame.
3. Spindle for spindle, it will produce as much yarn as a frame, due to a practical operating speed and negligible breakage.
4. The cost of the yarn produced is at least ½ that of yarn produced on a frame.
5. Its initial cost is several times less than that of a frame.
6. Its cost of upkeep is exceptionally low.
7. The J & B filling package does not require rewinding for the automatic loom.
8. Changes for spinning different types of yarn on the J & B Mule are easily and quickly made.
9. Mule bobbins cost less than frame bobbins.

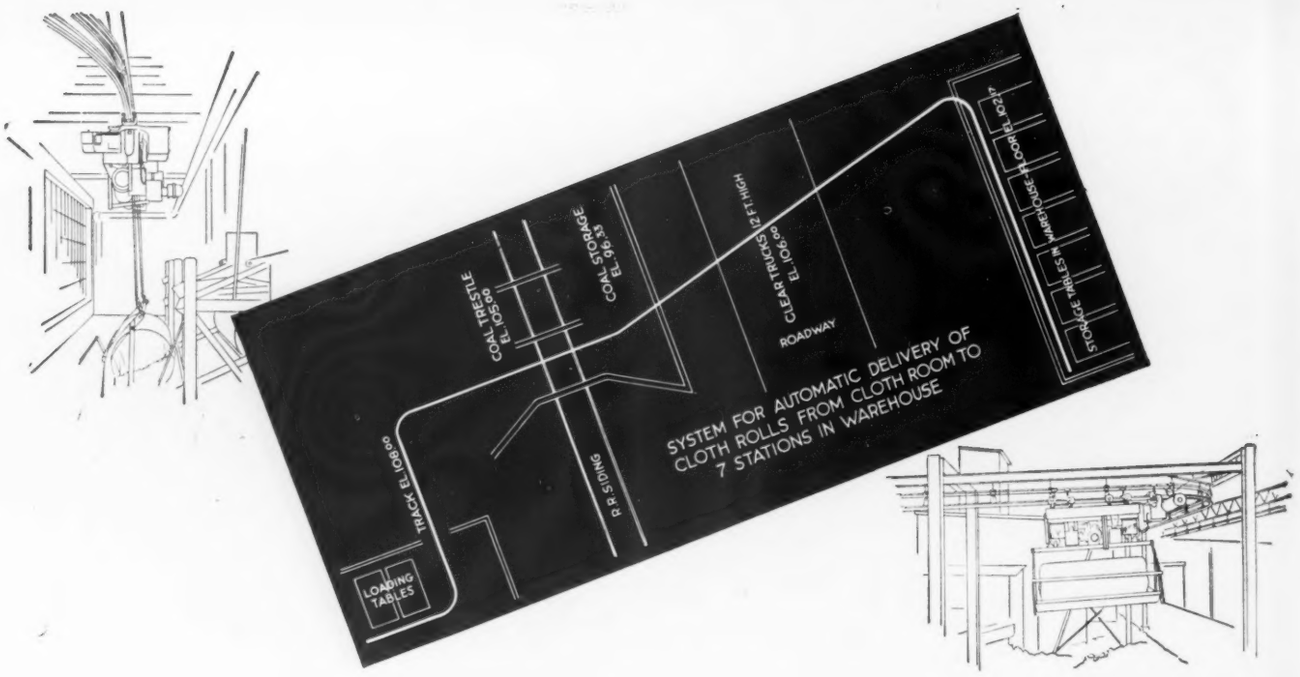
OLD DOMINION approaches your packaging professionally: a complete service that analyzes your product and problems, and scientifically solves them — assuring you the right box for the job. Whether you require set-up, spiral wound, corrugated or folding boxes, our packages offer the best features for shipping, safety, and selling. Old Dominion's forty years of experience, product research, and an able engineering staff, plus nine plants strategically located, are at your service.

OLD DOMINION *Box Company Inc.*

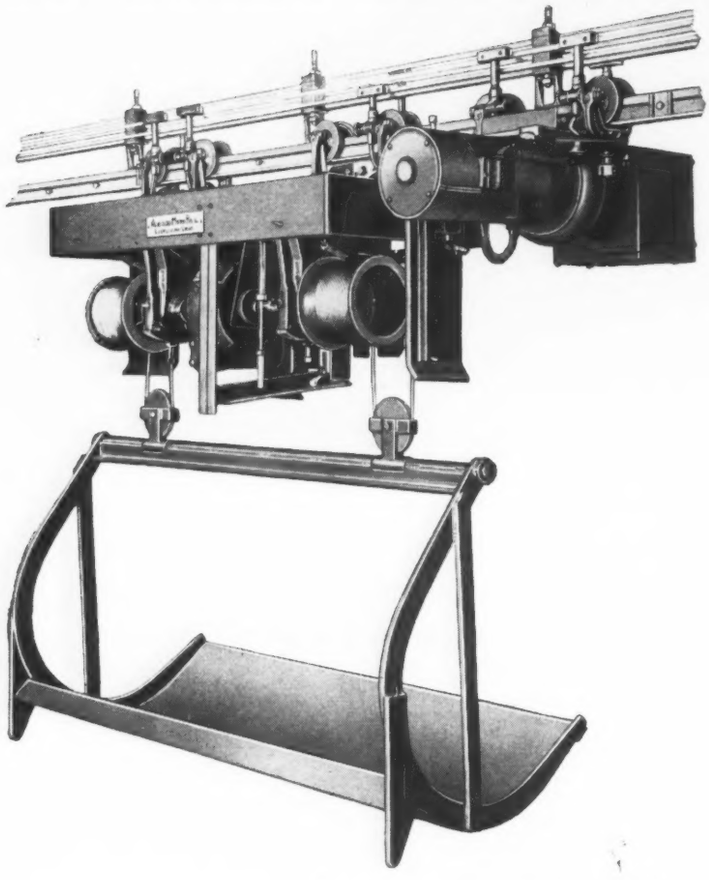
PLANTS LOCATED THROUGH THE SOUTH
NEW YORK REPRESENTATIVE
228 EAST 46th ST., NEW YORK 17, N. Y.

CHARLOTTE • N. CAROLINA

PRECISION BUILT PAPER BOXES AND PACKAGING MATERIAL


SYSTEM FOR AUTOMATIC DELIVERY OF CLOTH ROLLS FROM CLOTH ROOM TO 7 STATIONS IN WAREHOUSE
COAL TRESTLE EL. 109.00
COAL STORAGE EL. 96.33
CLEAR TRUCKS 12 FT. HIGH EL. 106.00
ROADWAY
STORAGE RACKS IN WAREHOUSE 4 LOOR EL. 102.7
TRACK EL. 108.00
R.R. SIDING
LOADING TABLES

10 Years of Automatic Operation



AUTOMATIC handling is not new with American MonoRail. This system has been in operation over 10 years. It has been continuously operated day-in and day-out with remarkably few replacement parts.

The carrier picks up rolls of cloth from special tables in the mill. Carrier then travels 300 feet over a heavy grade into the warehouse to deposit the roll at one of seven tables. The system is controlled from a central panel which can be set for 20 consecutive trips without interruption.

Whatever your handling problem may be, there is an American MonoRail System best suited to your individual needs. Consultation in connection with any handling problem is available without obligation.

THE AMERICAN MONORAIL COMPANY

13108 ATHENS AVENUE CLEVELAND 7, OHIO

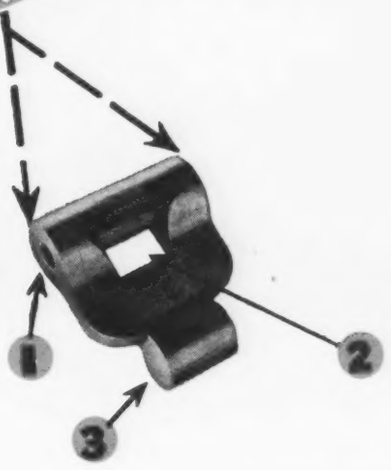
ONLY DAYTON GIVES YOU THE *3 in 1* PICKER PERFORMANCE

The Dayton Reversible Drop Box Picker is an excellent example of what we call a "tailored" product—tailored to do a job, to save you money and to up your production. As you know, a reversible drop box picker has three functions to perform. By the very nature of those three functions, the three parts required to perform them should have different physical properties. Those three physical properties have been incorporated into the Dayton Drop Box Picker. For details read the captions, right.

Dayton Pickers, like all Dayton textile products, outlast and outperform because *we know how to build into rubber products the precise properties dictated by the nature of the work to be done.*

If you are not already using Dayton Pickers a trial order will convince you. Write for prices and complete information.

THE DAYTON RUBBER MANUFACTURING COMPANY
Dayton 1, Ohio • Waynesville, N. C.
Main Sales Office: Woodside Building, Greenville, S. C.



1 Around the spindle hole of Dayton's Reversible Drop Box Picker is a hard composition bearing surface. It won't wear egg-shaped. No lubrication required.

2 Where the picker stick contacts this picker the proper amount of cushion has been built in to take the impact. Less wear here.

3 A still softer composition is used at the shuttle contact. This eliminates shuttle point loosening, helps assure a perfect throw throughout the life of the picker.

Dayton Rubber

FAMOUS DAYCO SYNTHETIC RUBBER PRODUCTS SINCE 1934

PARAMOUNT'S Air-Cooled Table SETS A NEW STANDARD FOR YOUR HOSIERY FINISHING...

Centralized Piping, directly under Forms, is INSULATED

Heat Concentrated at Drying Area

•

Wet Goods Troughs

STAY COOL

No frequent rewetting of Hosiery

•

AIR-COOLING

Insures operator's

TOP EFFICIENCY

even on hottest days!

HIGHER OR LOWER DRYING TEMPERATURES THAN HAVE EVER BEEN POSSIBLE!

Outstanding new system of steam circulation permits efficient drying of Heavyweight or Lightweight Styles... *faster* drying of Wool or Heavy Socks.

INCREASED OUTPUT ASSURED WITH PARAMOUNT HI-LO PRESSURE FORMS

Air-Cooled Tables feature Paramount's amazing, new Steel Innertubed HI-LO PRESSURE FORMS (either Solid or Paraflex) with Built-in Angle Base. *Angle-Mounting* permits closer positioning of forms, shortening table length over 2 feet and improving steam circulation.

PARAMOUNT AIR-COOLED TABLES AVAILABLE IN TWO SIZES: Single Table—12 Forms • Double Table—24 Forms (12 each side)

PARAMOUNT TEXTILE MACHINERY CO.

Main Sales Office

538 S. WELLS ST. • CHICAGO 7, ILL., U. S. A. • PHONE WABASH 6161

FACTORY—KANKAKEE, ILLINOIS • CABLE ADDRESS PARFORM

TEXTILE MANUFACTURERS

HERE ARE FACTS ABOUT FINANCING TEXTILE MACHINERY

You can finance the replacement of obsolete, worn-out machinery and equipment through C.I.T. ON LONG TERMS and AT LOW COST.

Purchase any type of machine needed to re-equip your plant . . . combine several items in one obligation . . . install air conditioning, modern lighting, other equipment if desired. LET C.I.T. FINANCE THE ENTIRE TRANSACTION.

C.I.T. makes commitments to cover the cost of machinery purchased for future delivery. Funds available—any amount, large or small—for immediate or deferred use.

WE FINANCE

LOOMS
KNITTING MACHINES
CARDERS
BOARDING MACHINES
DRYERS—DYERS
WINDERS
WASHERS
MOTORS

ALL MAKES—ALL TYPES of TEXTILE MACHINERY

Any of these offices will furnish full information regarding C.I.T. financing services. We are ready to serve you promptly and efficiently.

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NEW YORK, N. Y.

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The Mark of
LEADERSHIP

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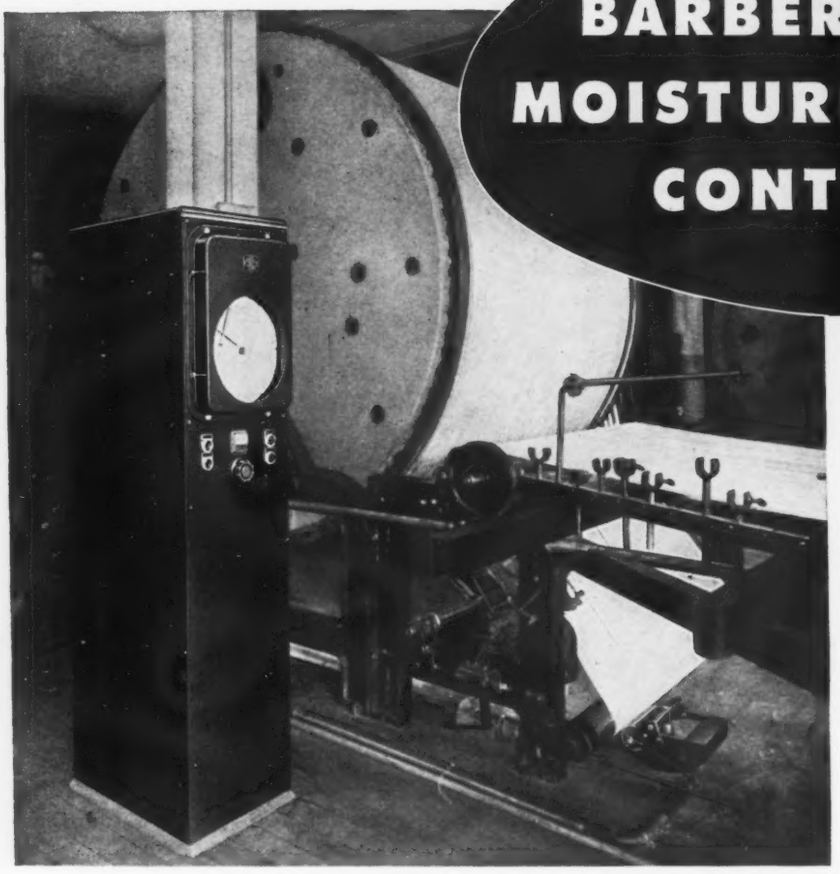
In Canada: CANADIAN ACCEPTANCE CORPORATION *Limited, Metropolitan Building, Toronto, Canada*

AFFILIATED WITH COMMERCIAL INVESTMENT TRUST INCORPORATED

BARBER-COLMAN MOISTURE CONTENT CONTROLLER

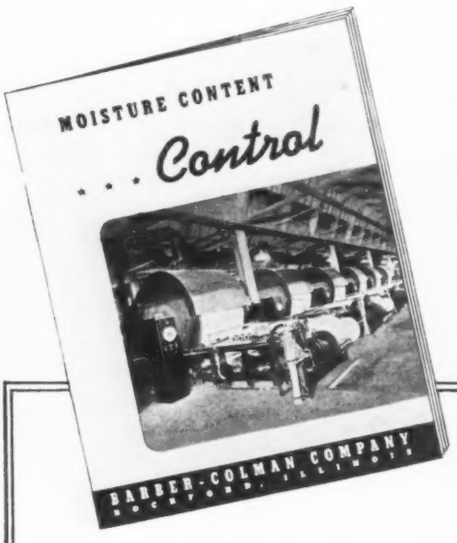


AUTOMATIC ELECTRONIC CONTROL OF REGAIN AT THE SLASHER GIVES MORE UNIFORM QUALITY PRODUCT AND INCREASED PRODUCTION

EXPERIENCE COUNTS

SINCE 1900 BARBER-COLMAN COMPANY HAS BEEN PRODUCING PROGRESSIVE EQUIPMENT FOR IMPROVING PRODUCTION IN TEXTILE MILLS

For details on the principles, features, advantages, and the benefits to be gained from Barber-Colman Moisture Content Control equipment, send for this brochure. Ask for Bulletin F-1705-1.



We first began getting acquainted with textile people and their problems 45 years ago when we introduced a Hand Knotter which improved the efficiency of winding machine operators. Then we produced the Warp Tying Machine which speeded up the operation of replenishing repeat warps, and the Drawing-In Machine which took the drudgery out of the tedious and difficult task of pulling warp ends through reeds, harnesses and drop wires. Over 20 years ago we brought out the Automatic Spooler and High-Speed Warper which have greatly improved the quality and efficiency of winding and warping. Now we want to call your attention to one of our newest products for textile mills — the Barber-Colman Moisture Content Controller. Like every Barber-Colman product before it, this item is presented on the basis that a pre-sale survey must indicate the installation will be a paying proposition for the purchaser. We feel that our many years of experience in your field enables us to give mature consideration to your needs, and thus we can assure you that your purchase of Barber-Colman Moisture Content Control equipment will be satisfactory in every way.

Barber-Colman Company

45 YEARS EXPERIENCE SERVING TEXTILE MILLS

ROCKFORD ILLINOIS | BOSTON MASSACHUSETTS | GREENVILLE SOUTH CAROLINA | GREENSBORO NORTH CAROLINA | ATLANTA GEORGIA

Its 2-Way Action Brings 20-Way Benefit To Your Goods

NOPCO FUA REVOLUTIONARY *Self-Fulling Self-Scouring* WOOL OIL!

BENEFIT 1.
100% FATTY—CONTAINS NO MINERAL OIL

Benefit 2. **Nopco FUA is non-oxidizable.**

BENEFIT 3. SPEEDS UP CARDING

Benefit 4. **Nopco FUA won't gum up the cards.** ***Benefit 5.*** **It has anti-static properties that cut down fly in carding and reduce any "loading up," particularly on the workers. Since finding it no longer necessary to strip cards at all (instead of every 15 to 18 hours as formerly), one mill reports that it saves the price of Nopco FUA by the reduction in stripper waste alone.**

BENEFIT 6. IMPROVES ROVING AND YARN PRODUCTION

Benefit 7. **With Nopco FUA, the original loft and resiliency of wool fibers is maintained.** ***Benefit 8.*** **It prevents "bearding," a common cause of fiber weakening.** ***Benefit 9.*** **It helps increase yarn's tensile strength.** ***Benefit 10.*** **It will not become set in the yarns during steaming nor in the goods after steaming and crabbing.**

BENEFIT 11. FULLS AND SCOURS WITHOUT SOAPS OR DETERGENTS

Benefit 12. **Nopco FUA acts like an oil on the fibers and like a soap in the wet finishing operation.**

Benefit 13. **The 3% Nopco FUA and water solution *originally* added to the stock gives "hard-to-believe" fulling and scouring results, *without the addition of soap or detergents.*** **Some mills have found even lower percentages of Nopco FUA highly effective.** ***Benefit 14.*** **Nopco FUA leaves the stuffing box and folds in the same manner as when soap or detergents are used.** ***Benefit 15.*** **It makes for appreciable saving in rinsing time.**

OTHER ADVANTAGES OF THIS NOVEL TEXTILE LUBRICANT

Benefit 16. **Nopco FUA is more compatible with fugitive tints than any similar product.** ***Benefit 17.*** **Nopco FUA aids level piece dyeing.** ***Benefit 18.*** **It eliminates need of excessive alkali.** ***Benefit 19.*** **It gives extremely low ether extraction.** ***Benefit 20.*** **It helps remove pitch or tar easily. Nopco FUA makes all of these 20 benefits possible, at no material increase in cost!**

Actual production shows that Nopco FUA is the most outstanding self-fulling and self-scouring oil yet developed. For better wool processing, write for fully informative Nopco Data Bulletin.

NATIONAL OIL PRODUCTS COMPANY
BOSTON • HARRISON, N. J. • CHICAGO
CEDARTOWN, GA. • RICHMOND, CALIF.

NOPCO FUA

SELF-FULLING
SELF-SCOURING
WOOL OIL

NOPCO
EVOLVED THROUGH RESEARCH

MEADOWS IMPROVED NON-COCKING SPINNING SADDLE AND STIRRUP

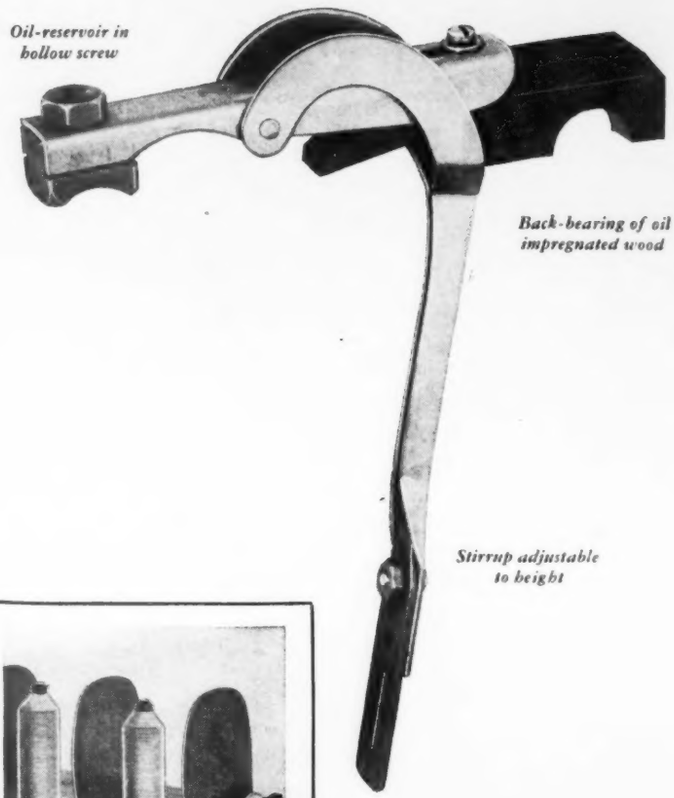
No Wicks • Oil-Impregnated Bearings • Vertical Adjustments 88 Hours Between Oilings • Less Oil on Cots and Yarn

This superior saddle does away with wicks. The back-bearing is made of oil-impregnated wood, and requires no oiling. The front-bearing is impregnated bronze, with oil reservoir in hollow screw at top, in which oil is placed only once each 88 hours. Less oil on cots—less oil on yarn.

Due to broad bearing surfaces, the Meadows Saddle does not cock like conventional saddle. This reduces wear on saddle parts and cutting of rollers. Weight is evenly distributed, and rollers held exactly in place.

Saddle may be adjusted both horizontally and vertically, and bearings easily replaced when worn. Stirrup adjustments for any height roll stands. Fits all long draft spinning systems with centers 1-9/16" to 2". Write us, or consult our representatives, for information and prices.

This Meadows Spinning Saddle was formerly distributed by John C. Turner of Atlanta, as the "W-Improved" saddle, but is now being manufactured and distributed exclusively by us.



Representatives

JAMES P. COLEMAN,
P. O. Box 1351, Greenville, S. C.

MATTHEWS EQUIPMENT CO.,
93-A Broadway, Providence, R. I.

These new Meadows Superior Separator Shields fabricated of high strength Aircraft Alloy; light as aluminum, strong as steel. No toggle motion needed; mount direct on rail, without additional counterweight. Shields, support rods and brackets to fit your frames at surprisingly low cost. Contact our representatives.

MEADOWS MANUFACTURING CO. • ATLANTA, GA.

NE PLACE TO LOWER OVERHEAD IS...

...Underfoot

There's a lot of unnecessary money spent on some floors because one fundamental fact is overlooked: *that excessive wear and mechanical failure are frequently induced by decay.* Halt the decay—and the floor lasts.

In one large warehouse, four years of service left the original floor in such bad condition that a new one was necessary. Pressure-treated wood was used for the replacement . . . and after 12 years it was still good, with no indication that the end of its usefulness was anywhere in sight.

The decay hazard is greater when moisture is present, and here pressure-treated wood pays extra dividends. The high degree of protection that pressure-treatment gives under these conditions has been demonstrated many times over, under all types of service.

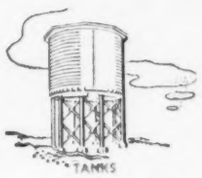
For floors, platforms or other structural members exposed to chemical attack, Koppers has developed a new plastic impregnated wood you will find it worthwhile to investigate. Ask for the facts about "Asidbar."*

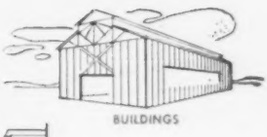
Our illustrated bulletin, "Economical and Permanent Construction with Pressure-Treated Wood" will give you timely information. We will gladly send a copy, on request. Wood Preserving Division, Koppers Company, Inc., Pittsburgh 19, Pennsylvania. *Trademark

WOOD PRESERVING DIVISION

KOPPERS

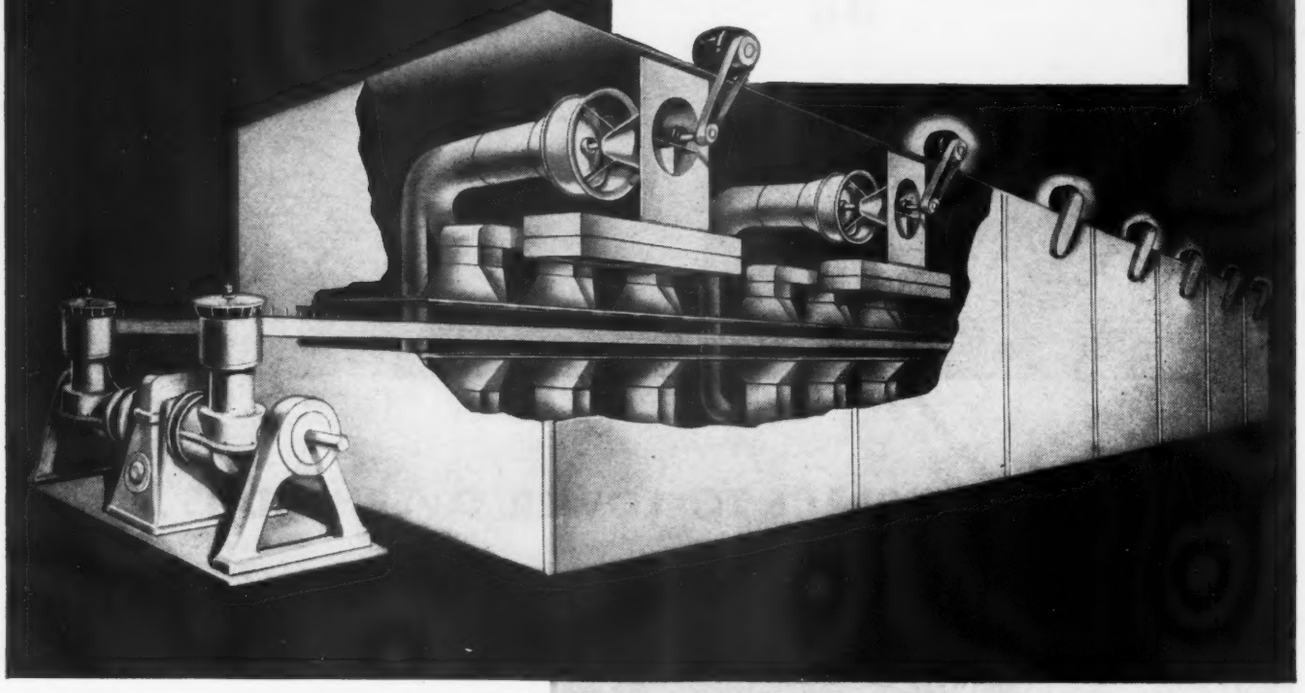
The Industry that Serves all Industry



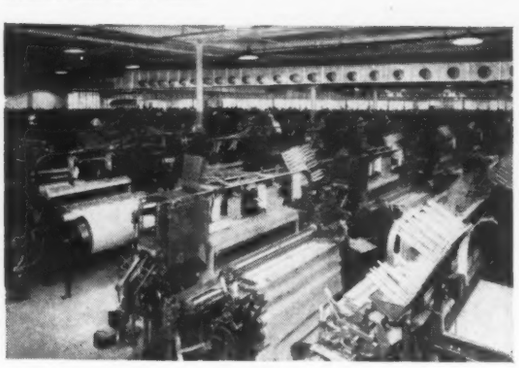


NEW TENTER FRAME DRYER DOES THE JOB FASTER!

Drying speeds up to 250 yards per minute are possible with Sturtevant's new 90-foot Tenter Frame. And notice how all apparatus (except motors) has been built *inside* the housing. Made in sections, each ten feet long, each an integral unit including motor, fan, heating coil, duct work. In place of end slides, an air lock is used, which makes the operator's job easier, and reduces to a minimum the amount of heat escaping into room. Equipped with Sturtevant's heavy duty heater, the new high temperature Axiflo fan, and redesigned nozzles for more efficient air flow.



BELOW: Sturtevant's Evaporative Cooling system improves output in this nylon mill, where precise control of temperature and humidity pays off in uniformity, less waste, faster production and lower costs.



BEFORE—dense "fog" in the Robertson Bleachery before the Vapor Absorption system was turned on. This means more "seconds," rejects, high plant maintenance and hazardous working conditions.

AFTER—same room with Vapor Absorption system in operation. Sturtevant builds many such systems to meet many different manufacturing and processing requirements.

HEATING • VENTILATING • AIR CONDITIONING •

DRYING • DUST AND FUME CONTROL

WHY THIS FAMOUS TRADE SLOGAN NOW HAS NEW IMPORTANCE FOR THE TEXTILE MANUFACTURER

Sturtevant is now "Putting Air to Work" as a Division of Westinghouse Electric ... 3 *new advantages!*

By pooling resources with Westinghouse Electric, Sturtevant now offers the most complete line of air handling and air conditioning equipment ever available from a *single manufacturing source.* To the textile manufacturer, this means three important new advantages:

1. **UNDIVIDED RESPONSIBILITY** in dealing with one source for all air handling and air conditioning equipment—from planning to assembly, final installation and service.

2. **IMPARTIAL ENGINEERING HELP** because the two organizations together manufacture every component part of the complete system, and in such variety as to be able to recommend—and *assemble*—exactly the right equipment for any given job.

3. **COST SAVINGS** that come from buying air handling and air conditioning equipment in one complete "package". No extras, no added costs.

The new Tenter Frame Dryer (described on the opposite page) is Sturtevant's latest addition to a wide range of air handling systems for the textile manufacturer . . . including slasher exhaust, plant humidification, conveying, drying, vapor absorption and mechanical draft. And now, to the Sturtevant plant at Hyde Park, Westinghouse brings its production of hermetically sealed compressors, central plant type Unitaires, condensers, water chilling units, and the new electronic air cleaner, *Precipitron,** considered one of the most important air cleaning developments of recent years.

A Sturtevant engineer will gladly show you what complete systems of "engineered air" can mean to you in better production and lower costs. Inquiries should be addressed to: The B. F. Sturtevant Company, Division of Westinghouse Electric, Hyde Park, Boston 36, Mass.

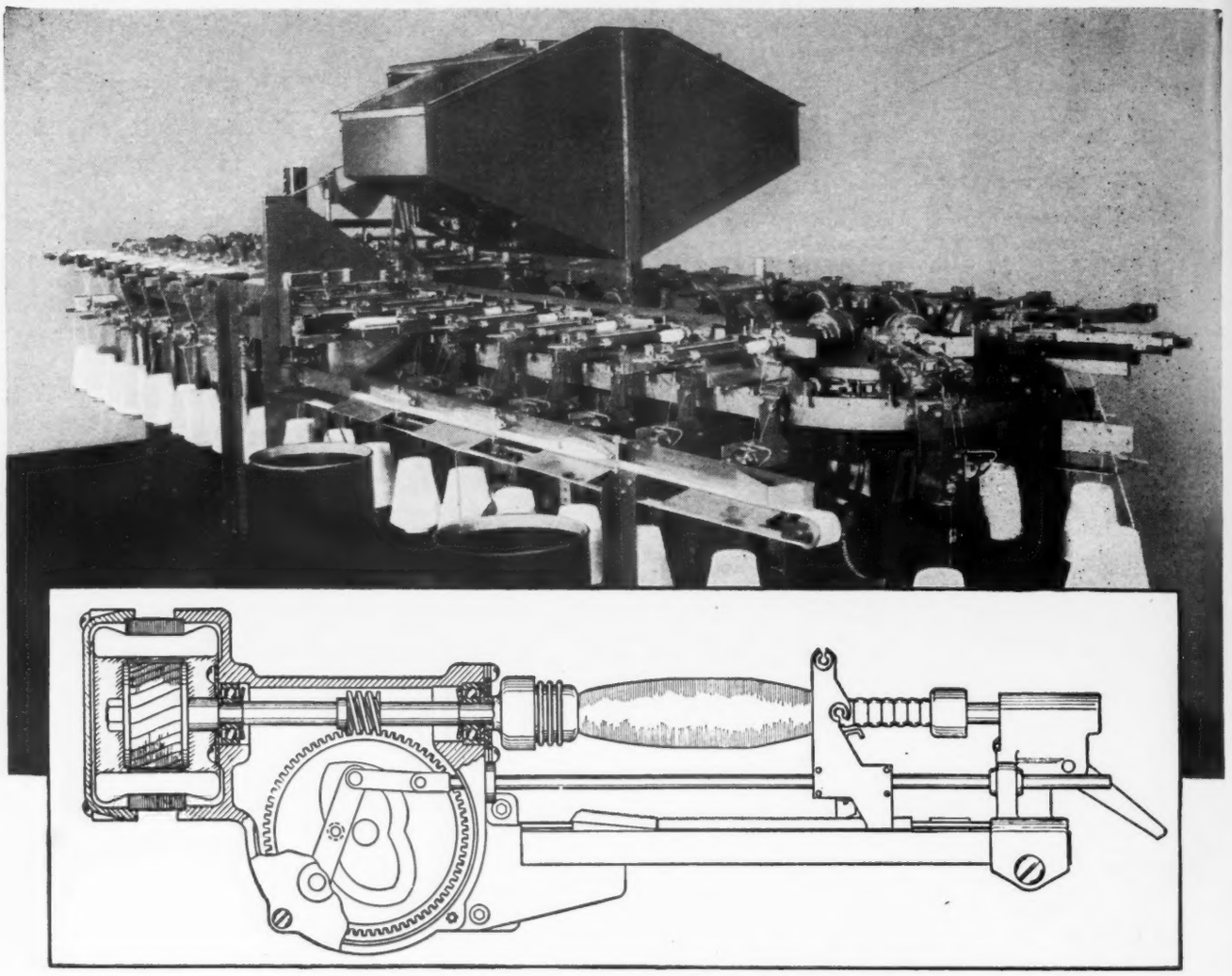
**Trademark registered in U.S.A.*

Sturtevant
Puts Air to Work

B. F. STURTEVANT COMPANY • DIVISION OF
Westinghouse
ELECTRIC

PRECIPITRON

MECHANICAL DRAFT



"FULLY AUTOMATIC"
automatically calls for Fafnirs

Like a good executive an Abbott Automatic Traveling Spindle Filling Winder makes a complex job simple by organization and by delegating responsibility to responsible units. There's only one automatic head for up to a hundred spindles. Each spindle has its own motor.

Of course, this design, using integrally driven units, demands that each unit be dependable. There must be no unnecessary friction, lag or lack of running truth. So Abbott Machine Company chose Fafnir Ball Bearings.

No one quality but several Fafnir qualities make these bearings ideal for this Abbott job. They have the thrust capacity in addition to radial capacity to handle the worm gear action in these spindles. They require a minimum of maintenance; a very important quality for textile mills. And these Fafnirs have deep races and large balls – perfectly balanced for long life.

But what's more important than any bearing feature, is where Fafnir Ball Bearing designs begin . . . out in the field. It's the reason for Fafnir's complete line of specialized textile bearings . . . and for "the most complete line in America." The Fafnir Bearing Company, New Britain, Connecticut.

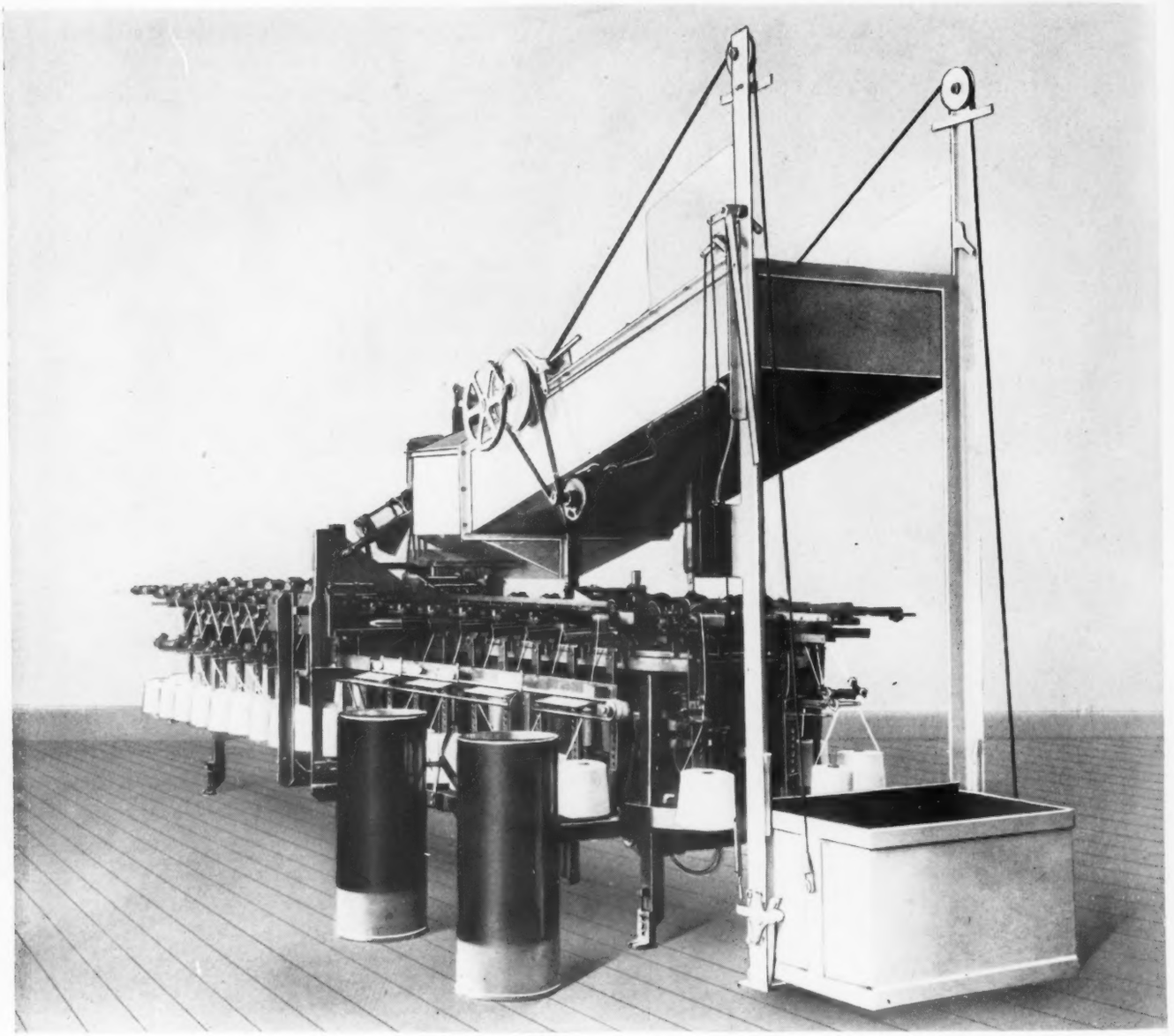
MOST COMPLETE LINE IN AMERICA

FAFNIR BALL BEARINGS

Chemical reactions that unlock the rainbow's spectrum from stygian tar oil can be defined precisely. But techniques of producing aniline dyes and applying them with unfailing accuracy of hue and shade — these are elusive as the subtle lines of a couturier's creation.
Oldest and only American producer of every class of aniline dye and color, National Aniline has accumulated a vast reservoir of dye application experience in every field where color is used . . . available through nearby National Technical Service.
WHEREVER COLOR IS USED
National Aniline
DIVISION OF
ALLIED CHEMICAL & DYE CORPORATION
40 RECTOR STREET NEW YORK 6, N. Y.
BOSTON · PROVIDENCE · PHILADELPHIA · CHICAGO · SAN FRANCISCO · CHARLOTTE
GREENSBORO · ATLANTA · NEW ORLEANS · CHATTANOOGA · PORTLAND, ORE. · TORONTO

AUTOMATIC TRAVELING SPINDLE FILLING WINDER

FULL AUTOMATIC OPERATION



We did not make many Rayon Quillers during the War, because our Automatic Quiller production was allocated to more essential requirements, such as cotton plied yarns on Duck, etc. However, we have a number of these running now and our customers are cordially invited to examine them running in the mills as we could not show them in the Greenville Show as we expected.

They are made standard 100 spindles to take the regular 7 3/8" Draper head bobbin, wound approximately 1" in diameter, spindle speeds are 5200 R.P.M.

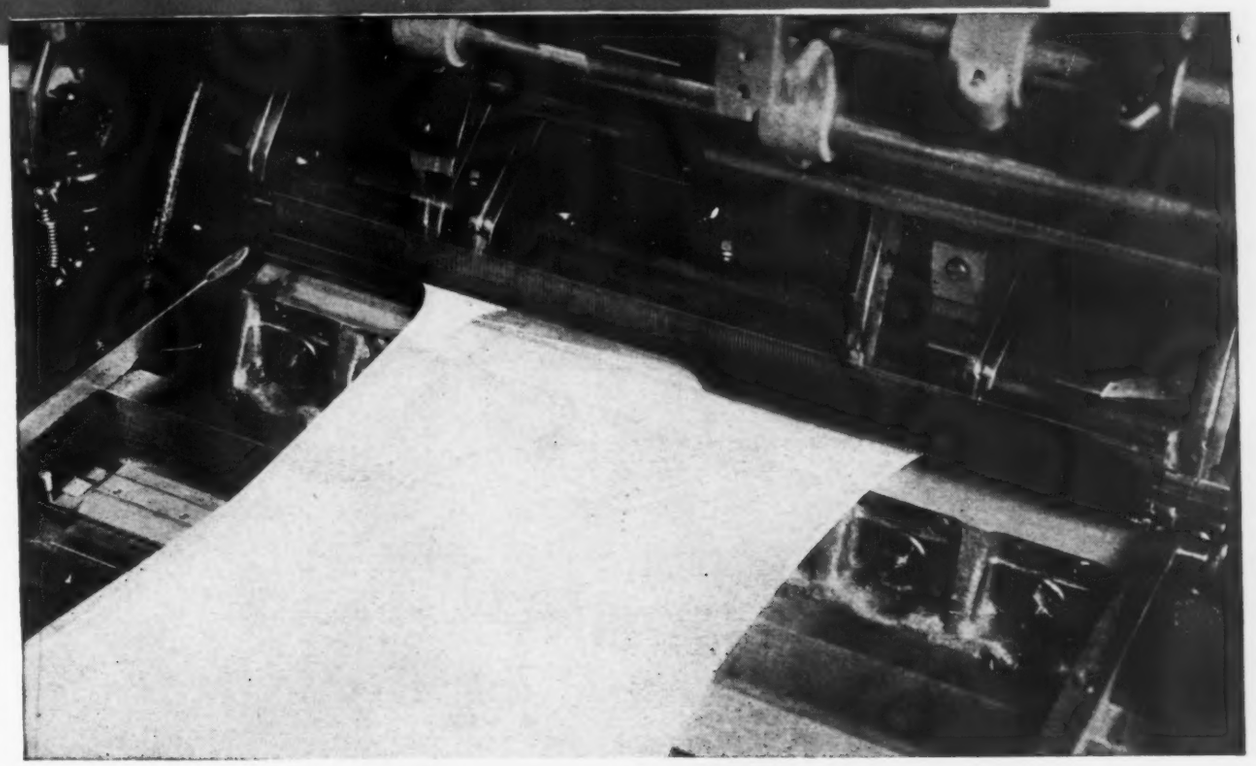
The bobbins on our Rayon Quiller are handled very gently and placed on a wide apron, side by side, where they can be examined carefully, marked if need be, and placed directly on pin boards.

The empty bobbin handling is wholly automatic, the bobbins being placed in a box which dumps itself and returns automatically, and there is a large reserve of about 4,000 bobbins in the hopper and chute.

ABBOTT MACHINE COMPANY, Wilton, New Hampshire

Southern Representative L. S. Ligon, Greenville, South Carolina

WHAT NEEDLE BARS ARE MADE OF
. . . is mighty important to you



Look at the advantages Reynolds Aluminum offers

Take stockings for instance.

Needle bars, such as the one shown above, have a lot to do with the quality and cost of full-fashioned hosiery.

These bars must swing through their intricate figure-eight cycle with swiftness and precision. That calls for a material combining lightness and high strength with excellent machinability and permanence of dimensions.

Higher Speeds—Reduced Vibration

Heat-treated aluminum alloys, made by Reynolds and extruded or cast into a variety of desired shapes, meet these exacting requirements. By cutting inertia forces, they permit higher speeds, reduce vibration and improve product quality. Moreover, they are highly resistant to the corrosive action of high-humidity mill atmospheres.

Consider Aluminum . . . Consult Reynolds. Lightweight, high-strength aluminum alloys can be used in many places to cut costs and improve quality in modern textile machinery. Reynolds engineers will assist you in working out the details of applications you have in mind. Offices in principal cities. Phone nearest office or write Reynolds Metals Company, Aluminum Textile Sales Division, 2535 South Third St., Louisville 1, Ky.

QUICK FACTS FOR QUICK READING

- **Aluminum alloys developed by Reynolds possess unit strengths greater than many structural steels.**
- **Section for section, Reynolds Aluminum alloys weigh only ⅓ as much as steel.**
- **Highly corrosion-resistant, they withstand the high humidity common to many textile processes.**
- **Permanent dimensional stability reduces vibration, makes higher speeds possible.**
- **They are easily fabricated which, combined with low material costs, insures low over-all cost.**

REYNOLDS METALS

339-A9-5

REYNOLDS ALUMINUM

The Great New Source of

INGOT · SHEET · SHAPES · WIRE · ROD · BAR · TUBING · PARTS · FORGINGS · CASTINGS · FOIL · POWDER

TRAMRAIL LAYOUT IN DYEING ROOM

Speeds Denim Raw Stock Dyeing and Handling

In 1939, a three-ton completely motorized Cleveland Tramrail Crane was installed in the Dye Room of a leading North Carolina denim mill. This serves five 1500-pound Chattanooga dyeing machines. It speeds the handling of heavy kier covers and bulky wet cotton charges.

The hard manual work formerly required has been eliminated. Time lost in loading and unloading the dyeing machines is greatly reduced and consequently they can be in dyeing service a greater part of the time.

Because of satisfaction with the first crane, another crane was purchased in 1941 and installed in an adjacent bay to serve a two-kier Gaston County dyeing machine for beam dyeing. This is a hand-propelled crane with electric hoist, that greatly facilitates the handling of beams in and out of the dyeing machines, extractor and dryer.

GET THIS BOOK!
BOOKLET No. 2008. Packed with valuable information. Profusely illustrated. Write for free copy.

CLEVELAND TRAMRAIL DIVISION
THE CLEVELAND CRANE & ENGINEERING CO.
1185 EAST 283RD ST. WICKLIFFE, OHIO.

CLEVELAND TRAMRAIL
OVERHEAD MATERIALS HANDLING EQUIPMENT

Step in here for a minute

...into C & K's "Question and Answer Department"

Through this door you enter C & K's Engineering Research and Design Department. This is a distinct domain, set apart from the main Engineering Department, in its own quarters. It has its own facilities, including the most modern testing equipment, recording oscillographs, the special high-speed camera (*designed and built by C & K engineers right in these rooms*) . . . and also one of this country's best-equipped, most complete machine shops and tool rooms for experimental work. Finally, Engineering Research and Design has its own staff . . . men picked for this special work on the basis of special and outstanding abilities.

And what does this work include? It is concerned chiefly with supplying the answers to questions asked by mill operating men in regard to different phases of loom operation. It probes suggestions for design-changes in loom parts and motions; determines definitely whether such changes are practical.

But that's not all. Concurrently with the problems of today, here are studied the problems of tomorrow. Here are tested and re-tested the new ideas, the bright and promising possibilities for new improvement on C & K Looms. And when a new idea does pass muster with the "Six*Sentries," then *your* weaveroom efficiency is always sure of a definite increase.

*Every Improvement-Idea for a C & K Loom must answer "YES" to one *or more* of these questions:

1. Does it increase Speed of Operation?
2. Does it increase Continuity of Operation?
3. Does it decrease the Work of the Operator?
4. Does it decrease Cost of Maintenance?
5. Does it improve Quality of Fabric?
6. Does it improve Appearance or Utility?

Crompton & Knowles Loom Works

WORCESTER 1, MASSACHUSETTS, U. S. A.
PHILADELPHIA, PA. • CHARLOTTE, N. C. • ALLENTOWN, PA.
Crompton & Knowles Jacquard & Supply Co.
Pawtucket, R. I.

between Today's Knowledge . .
and Tomorrow's Looms

Answers to your toughest problems

JACQUES WOLF SYNTHETIC DETERGENTS

for every textile purpose

✓ **ORATOL S POWDER (Sulphated Amide)** — For print wash, boil-off or any dyehouse job requiring good cleansing and emulsifying ability with lasting foam.

✓ **SELLOGEN A S CONC (Aryl Alkyl Sulfonate)** — For instantaneous wetting.

✓ **ORATOL L-48 (Sulfonated Amide Compound)** — Very effective detergent paste; greater detergency than soap and priced to give more economical results.

✓ **SELLOGEN C (Higher Alcohol-Ester Compound)** — High wetting and detergent properties; not affected by hard water or metallic salts; for scouring, dyeing, finishing. Also for emulsifying in other processes.

✓ **EMULSIFIERS L-32, L-34, L-45 (Non-ionic higher fatty acid ester)** — Emulsifiers in different concentrations adjusted for various purposes.

WOLF BRAND PRODUCTS

JACQUES WOLF & CO.

Chemicals PASSAIC, N. J.

OTHER PLANTS: CARLSTADT, N. J. • LOS ANGELES, CALIF.

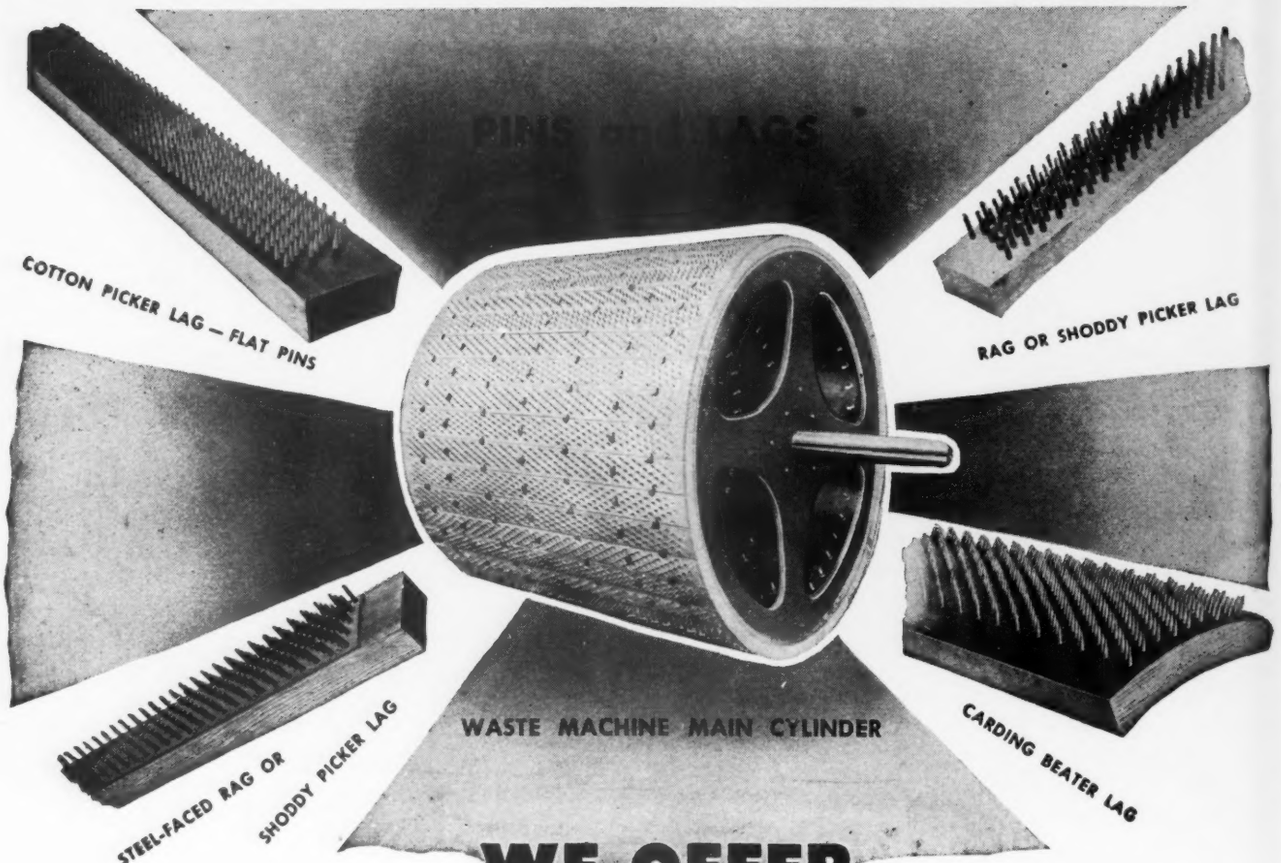
WAREHOUSES: Providence, R. I., Philadelphia, Pa., Utica, N. Y., Chicago, Ill., Greenville, S. C., Chattanooga, Knoxville, Tenn.

TYPICAL OF VAN VLAANDEREN ADVANCED ENGINEERING IS THIS NEWLY DESIGNED, MODERN V.V. EXTRA HEAVY DUTY TENTER

VAN VLAANDEREN MACHINE COMPANY

370 STRAIGHT STREET **PATERSON, N. J.**

World's largest manufacturer of modern fabric processing machinery.


COTTON PICKER LAG — FLAT PINS
RAG OR SHODDY PICKER LAG
STEEL-FACED RAG OR SHODDY PICKER LAG
WASTE MACHINE MAIN CYLINDER
CARDING BEATER LAG

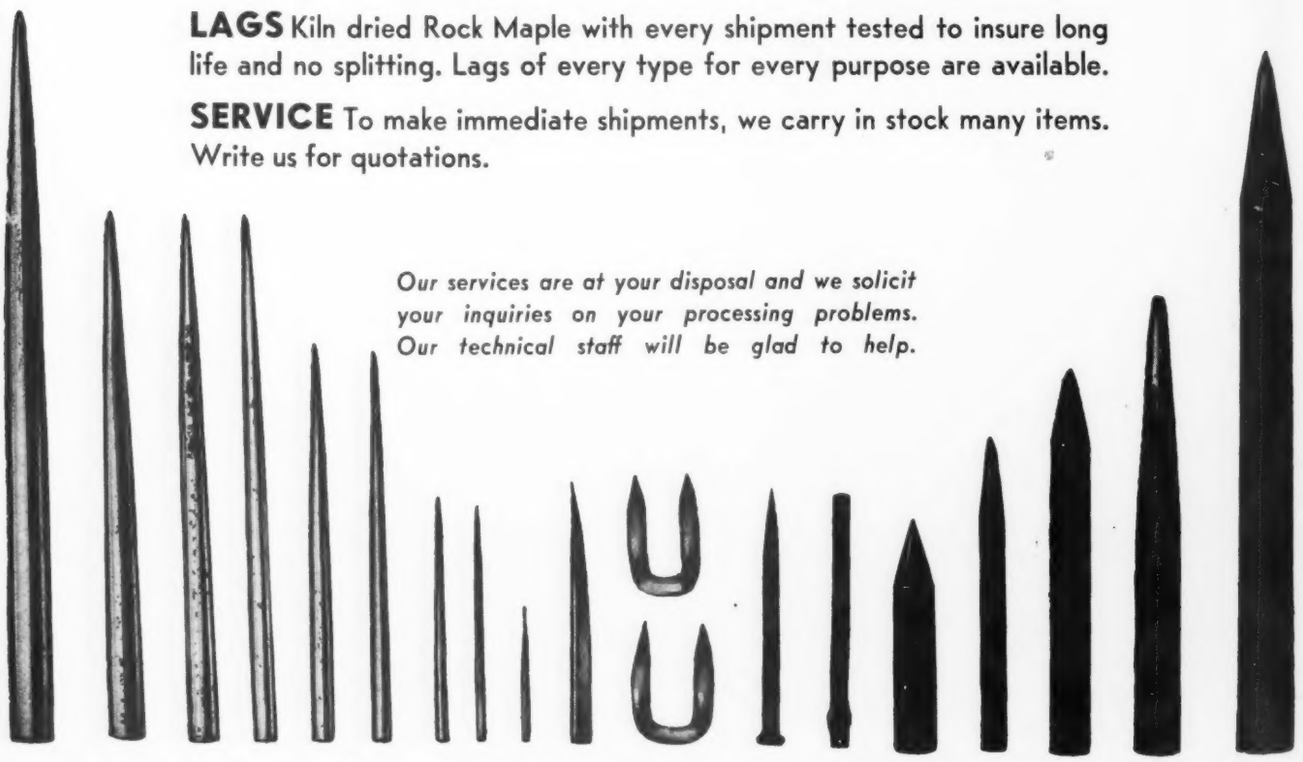
WE OFFER

PINS A completely new HARDENING and TEMPERING Department insures lasting quality and uniformity in the pins. We manufacture in any type.

LAGS Kiln dried Rock Maple with every shipment tested to insure long life and no splitting. Lags of every type for every purpose are available.

SERVICE To make immediate shipments, we carry in stock many items. Write us for quotations.

Our services are at your disposal and we solicit your inquiries on your processing problems. Our technical staff will be glad to help.



WILLIAM CRABB & COMPANY

301 - 3rd AVENUE, NEWARK, N. J.

8 IMPORTANT REASONS—

Why It Will Pay You to Specify

RELIANCE Series "C" MOTORS

1. **Protecting enclosures** keep out dirt, chips, oil, excess moisture.
2. **Steel stators for strength.**
3. **Thirteen-step winding treatment,** for maximum stator protection.
4. **Pressure cast aluminum rotors** provide trouble-free windings.
5. **Heavy shafts,** liberally designed for added strength.
6. **Precision bearing mount** affords *real* protection to bearings and windings.
7. **Optional lead outlet arrangement** permits machine mounting with elimination of conduit box.
8. **Flange and face type brackets** offer alternative methods of machine application.

Write today for Bulletin C-118 which gives more complete details on these 8 advantages and offers many additional reasons why it will **pay you** *to specify Reliance Series C Motors.*

RELIANCE ELECTRIC & ENGINEERING CO.

1086 Ivanhoe Road **Cleveland 10, Ohio**

Birmingham • Boston • Buffalo • Chicago • Cincinnati • Denver • Detroit
Gary • Greenville • Houston • Kalamazoo • Kansas City • Knoxville
Los Angeles • Milwaukee • Minneapolis • New Orleans • New York
Philadelphia • Pittsburgh • Portland, Ore. • Rockford, Ill. • St. Louis
San Francisco • Seattle • Syracuse • Tampa • Tulsa • Washington, D. C.

RELIANCE A-C D-C MOTORS

It doesn't *Cost* to switch to JOHNSON *Rotary Pressure* JOINTS ... it *Pays!*

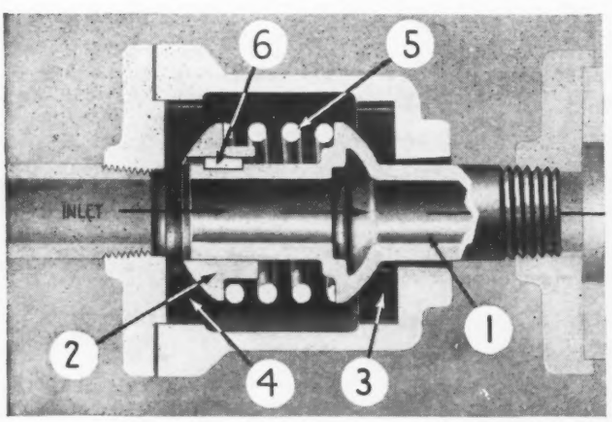
Johnson Rotary Pressure Joints provide the modern, engineered way to get steam in, and condensate out, of cans.

They save valuable production time otherwise lost when machines are shut down for repacking stuffing boxes or repairing ravages of misalignment.

Production is also boosted because Johnson Joints provide a simple, better way to install more efficient methods of syphon drainage.

Maintenance costs come down—Johnson Joints are packless, self-oiling, self-adjusting and self-aligning. Precious manhours, ordinarily required for the old-style stuffing boxes, can be released for more productive work.

Increased plant efficiency alone would make the Johnson Joints a good investment, yet the savings in maintenance can quickly pay the cost of changing over.



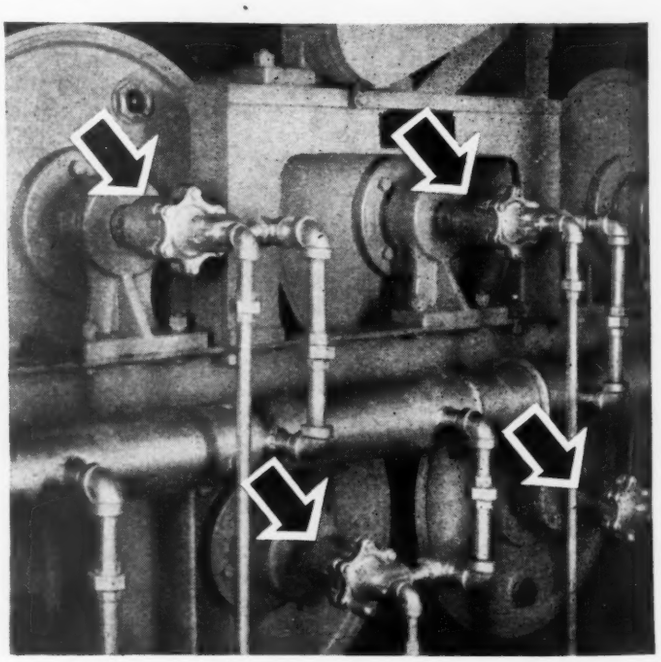
Completely Packless. Rotating member consists of nipple (1) and sliding collar (2), keyed together (6). Seal is accomplished by carbon graphite ring (3), forced by pressure tightly against nipple.

Self-Oiling. Seal ring and bearing ring (4) are of long-lived carbon graphite—require no lubrication.

Self-Adjusting. Spring (5) is for initial seating only. Joint in operation is pressure sealed; the higher the pressure, the tighter the seal.

Self-Aligning. Ball and socket joints between rotating member and rings provide angular flexibility. Space between nipple and housing allows lateral movement.

WRITE FOR COMPLETE INFORMATION



This Heater Really Gets Steamed Up About HOT WATER

If you want hot water fast just hook the Johnson *Instant* Heater to your steam lines. Needs no reducers; *hooks* right up to high pressure steam lines. Complete range of sizes and capacities. ***Write for bulletin.***

Products of The Johnson Corporation

814 WOOD STREET, THREE RIVERS, MICHIGAN

CROUSE-HINDS

Industrial Lighting Fixtures

The illustrations show a representative selection from the hundreds of different CROUSE-HINDS lighting fixtures—each designed for its own particular purpose.

No. 3
of a series of advertisements which demonstrate that CROUSE-HINDS "complete line" means much more than just a range of sizes—there is a wide variety of highly specialized types in each classification.

Type C Condulet with No. 1706 Lamp Receptacle

Type GRF Watertight Pilot Light Condulet

Type FS Lighting Fixture *for flush mounting in walls to light steps, floors, walks and gardens*

Type FS Condulet with Pilot Light, Switch, and Lamp Receptacle

Type G Condulet with No. H556 Lamp Receptacle

Type EGP Explosion-Proof Pilot Light Condulet *for panel mounting*

Type GRF Condulet with Lamp Receptacle

Type GSC Condulet with Bracket Lighting Fixture

Type MB Two-Gang Watertight Marine Pilot Light Condulet

Type V Vaportight Lighting Condulet *for mounting on machines*

Type EFS Explosion-Proof Condulet with Double Pilot Light

Type GS Condulet with Shock-Absorbing Lamp Receptacle *for use on machinery*

Type VDA Vaportight Observation Light Condulet *for mounting in vats*

Type LMKB Lighting Condulet

Type LMG Lighting Condulet

Type WV Vaportight Lighting Condulet with Fresnel Lens

Type VR Vaportight Lighting Condulet *for mounting on a hand rail*

Type VXJ Vaportight Lighting Condulet *for making extensions from concealed conduit wiring*

Type V Vaportight Heavy Duty Lighting Condulet with Shatterproof Globe *for use in the food industry*

Type C Condulet with Type ARC Vaportight Lighting Fixture

Type VXHA Vaportight Lighting Condulet with Flush Hubs

Type EVS Explosion-Proof Portable Lamp

Type RMC Watertight Marine Lighting Fixture

Type MLC Watertight Marine Lighting Condulet Shock-Absorbing Receptacle

Type MLC Watertight Marine Lighting Condulet

Type VC Vaportight Lighting Fixture Condulet

Type DLA Dust-Tight Lighting Fixture Condulet with Flat Cone Reflector

Type LPH Safety Hand Lamp

Type EVG Explosion-Proof Lighting Condulet *for gasoline pumps*

Type EVH Explosion Proof Hand Lamp

Type VS91 Vaportight Hand Lamp

Type RCD-8 Vaportight Lighting Fixture *for wall mounting*

Type EVA Explosion Proof Lighting Fixture Condulet

Type HNDS Condulet with Lighted Sign

Type EVA Explosion-Proof Pilot Light Condulet

Type RCDE-8 Explosion-Proof Pit Light

Type RCD-8 Vaportight Lighting Fixture *for floor mounting*

Type VLG Vaportight Gauge Lighting Condulet *Fluorescent*

Type EVA Explosion-Proof Sign Light Condulet

Type LG Gauge Lamp

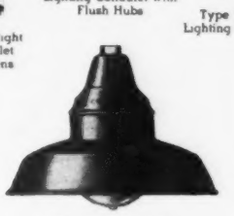
Type VFC Vaportight Gauge Lighting Condulet

Type VFC Vaportight Gauge Lighting Condulet

Type ELG Explosion-Proof Gauge Lighting Condulet

Type ELG Explosion-Proof Gauge Lighting Condulet *Fluorescent*

Type VPH Vaportight Indirect Lighting Condulet


Type VDB Vaportight Lighting Fixture Condulet with Dome Reflector *500-Watt*

Type DLA Dust-Tight Lighting Fixture Condulet *500 Watt*

Type EVA Explosion-Proof Lighting Fixture Condulet *500 Watt*

A Nationwide Distribution Through Electrical Wholesalers

Complete listings of each type are in Condulet Catalog No. 2500 or in supplementary bulletins.

CROUSE-HINDS COMPANY
Syracuse 1, N. Y., U.S.A.

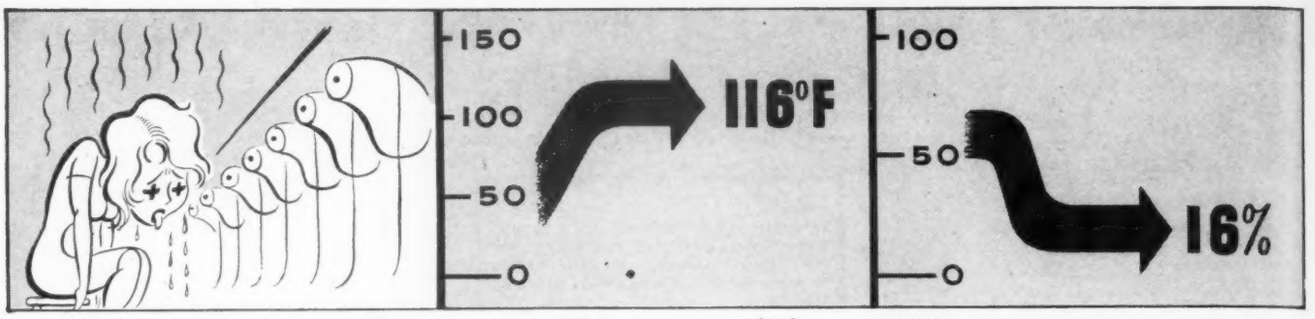
Offices: **Birmingham — Boston — Buffalo — Chicago — Cincinnati — Cleveland** — Dallas — Denver — Detroit — Houston — Kansas City — Los Angeles — Milwaukee — Minneapolis **New York — Philadelphia — Pittsburgh — San Francisco — Seattle** — St. Louis — Washington *Resident Product Engineers* Albany — Atlanta — Charlotte
CROUSE-HINDS COMPANY OF CANADA, LTD., *Main Office and Plant:* TORONTO, ONT.

CONDULETS · TRAFFIC SIGNALS · AIRPORT LIGHTING · FLOODLIGHTS

3 STEPS TOWARD ALL-TIME-HIGH OUTPUT

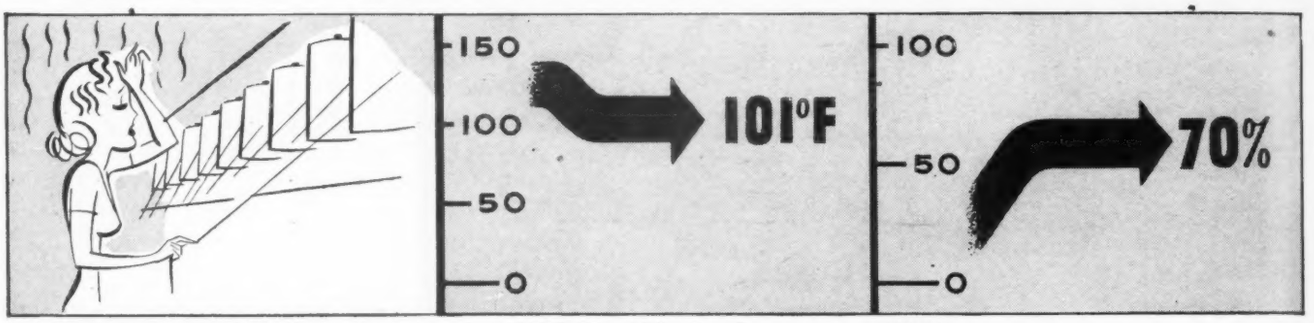
(TYPICAL MILL EXPERIENCE)

TEMPERATURES HUMIDITY



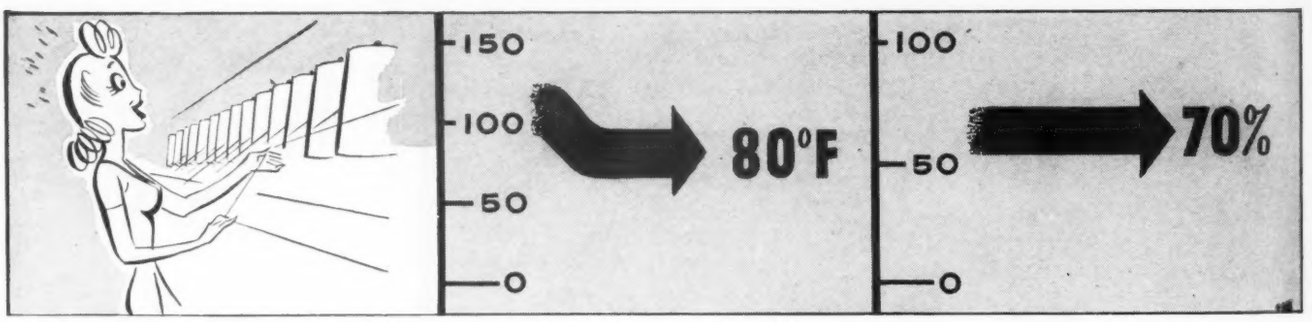
1. NO HUMIDIFICATION — NO TEMPERATURE CONTROL With temperature *high* and humidity *low* the work quality and worker efficiency were poor.

RESULT:
Poor Quality. Low Production.



2. WITH ADEQUATE, CONTROLLED HUMIDITY An AMCO Humidification System raised humidity from 16% to 70% and kept it there. The quality improved, but the worker still tired easily with temperature at 101° F.

RESULT:
Improved Quality.
Increased Production.



3. WITH HUMIDITY AND TEMPERATURE BOTH CONTROLLED Addition of an AMCO Evaporative Cooling System held humidity to the ideal 70%, also dropped temperature to 80° F.

RESULT:
Top Quality. Top Production.

In the Amco Evaporative Cooling System, relative humidity is raised by introducing atomized water spray and frictional heat is absorbed by evaporation of the moisture, made practical by carefully controlled air-flow.

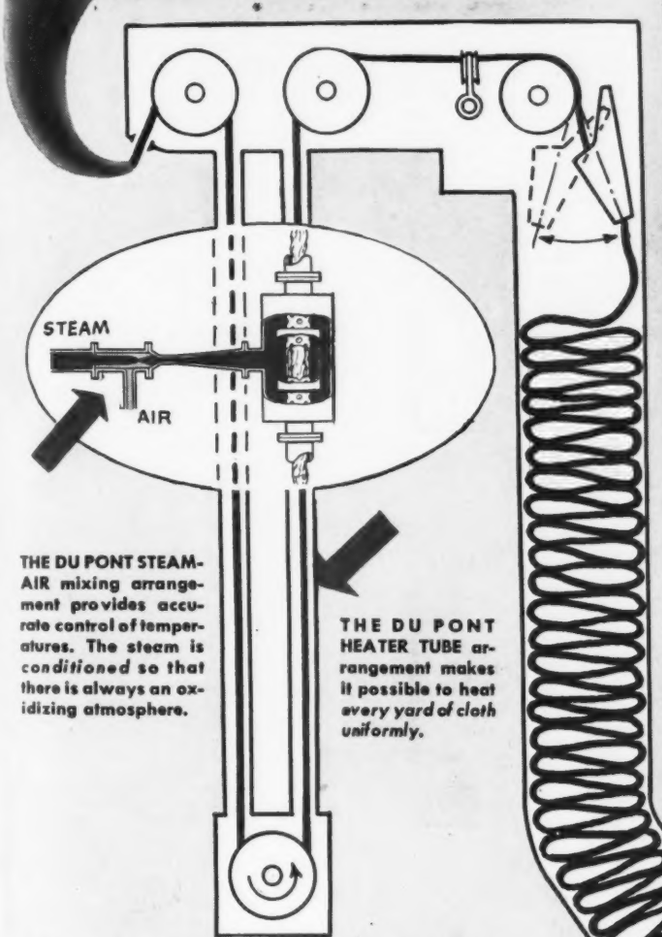
This typical experience, with outside temperature 90° F. and relative humidity 33%, demonstrates clearly that good machines and willing workers are not enough. Reducing excessive temperature and holding humidity at the point best suited to fibre and process and the workers' comfort are important in a dollars and cents way.

An AMCO engineer can tell you how you can modernize your plant, by installing this automatic temperature and humidity control, to get the speeds and output needed to meet competition.

AMCO EVAPORATIVE COOLING SYSTEMS

AMERICAN MOISTENING COMPANY, PROVIDENCE, R. I. • BOSTON • ATLANTA • CHARLOTTE

VAT-DYED GOODS BLEACHED WITHOUT BLEEDING OR MARK-OFF



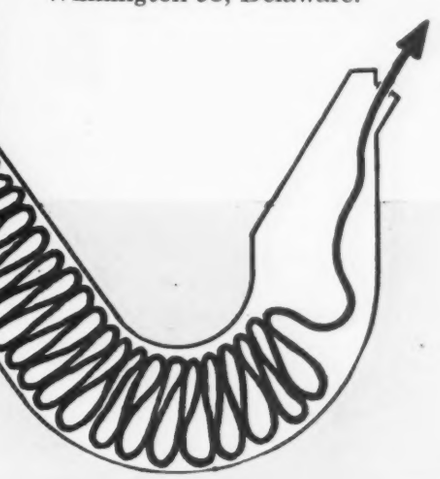
THE DU PONT STEAM-AIR mixing arrangement provides accurate control of temperatures. The steam is *conditioned* so that there is always an oxidizing atmosphere.

THE DU PONT HEATER TUBE arrangement makes it possible to heat *every yard of cloth uniformly.*

Economical processing made possible by exclusive features in Du Pont Continuous Bleaching System

GOODS CONTAINING vat-dyed yarns can be given a mild caustic treatment, then peroxide bleached. There's no danger of marking off or bleeding because all of the processing is done in an easily controlled oxidizing atmosphere. This combination treatment for vat-dyed yarns is the most economical and can save up to 30% in the overall chemical cost for bleaching.

More information about the Du Pont Continuous Peroxide System—and technical advice and assistance in its installations and use for your specific requirements—can be obtained from experienced textile men. Write or call our nearest district office. E. I. du Pont de Nemours & Co. (Inc.), Electrochemicals Department, Wilmington 98, Delaware.



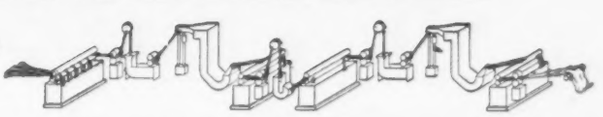
5 reasons for using a Du Pont Bleaching System

1. Uniform pretreatment
2. Uniform bleaching
3. Easy to control to close limits
4. Handles all types in one system
5. Saves steam, water, power, chemicals

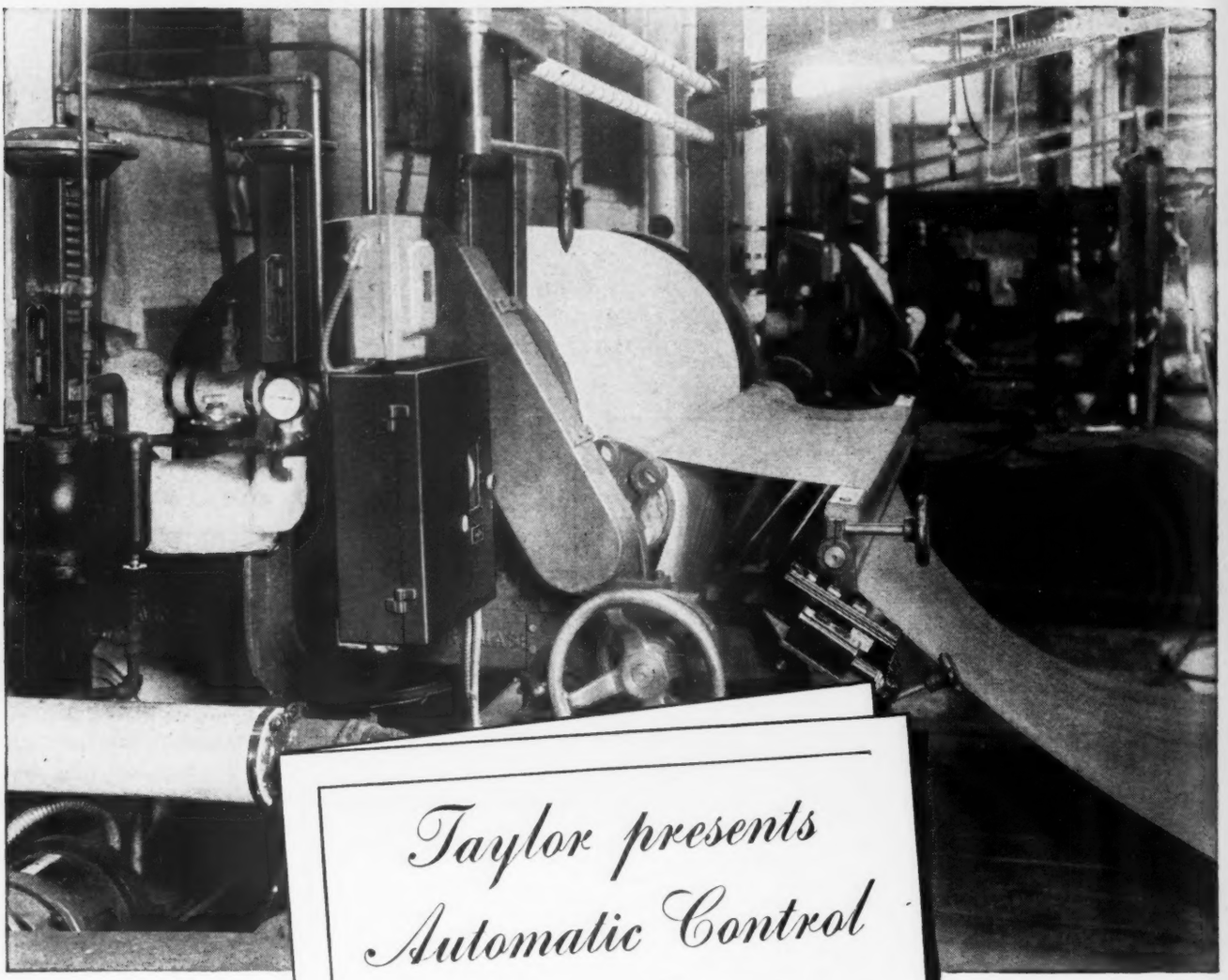
DU PONT PEROXIDES

DU PONT
REG. U. S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING
. . . THROUGH CHEMISTRY



FLOW DIAGRAM OF DU PONT CONTINUOUS ROPE SYSTEM.



Taylor presents Automatic Control of Semi-Decating

THE above machines were made by the David Gessner Company, Worcester, Mass., and are now doing a precision job for the Botany Worsted Mills in Passaic, New Jersey. And we're proud to say that the automatic control is presented through the courtesy (and engineering skill) of Taylor Instruments.

Brain of this new Taylor Automatic Control System is the Taylor Flex-O-Timer. After you've determined your ideal time schedule for steam and vacuum the Flex-O-Timer will reproduce the cycle *automatically.* This system eliminates the guesswork of manual control. Your operator will know he's getting uniform finish because Taylor Accuracy subjects each piece of cloth to the same length of time under steam and the same length of time under vacuum, and the Taylor Flex-O-Timer is quickly adjustable—can easily be set for different types of cloth.

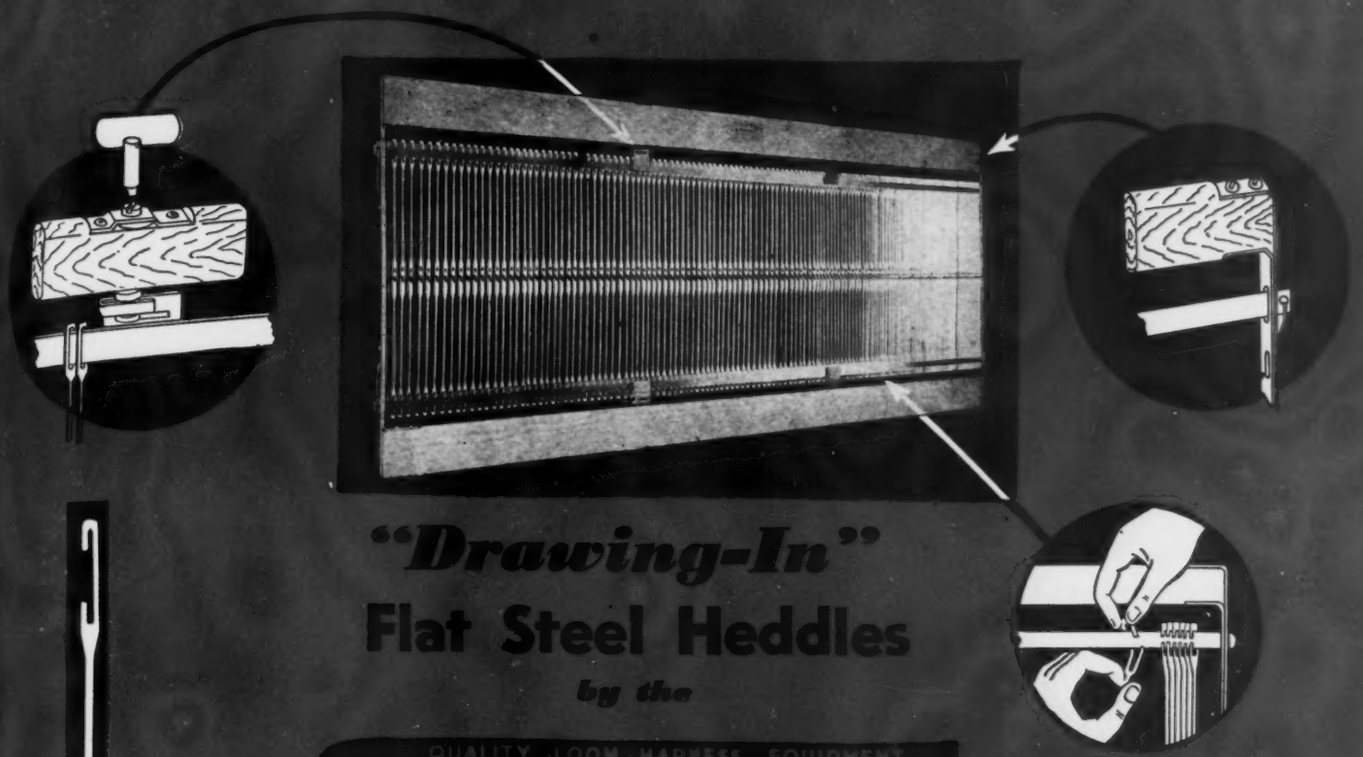
We also have an automatic control system for full decating. Why not call your Taylor Field Engineer for the complete story? Taylor Instrument Companies, Rochester, N. Y., and Toronto, Canada. *Instruments for indicating, recording, and controlling temperature, pressure, humidity, flow and liquid level.*

Taylor Instruments

MEAN

ACCURACY FIRST

IN HOME AND INDUSTRY



"Drawing-In" Flat Steel Heddles

by the

QUALITY LOOM HARNESS EQUIPMENT

Ste-Hed-Co

DRAW-TEX Method

It's New—it's Perfect—it's Positive—it's Simple and Speedy

Frame and Heddle (an entire unit) specially designed and made with the same high efficiency and ideals as all Ste-Hed-Co products.

Heddles can quickly be removed—no lock hook, center braces, or anything to obstruct a perfect movement of the Heddle from one side of frame to other.

Made for weaving every type of textile fabric, cotton, worsted, wool, rayon and other synthetic yarns.

Send for all the interesting facts or consult our local Field Engineer

STEEL HEDDLE MFG. CO.

2100 W. Allegheny Avenue, Philadelphia 32, Pa.

NEW TOUGHNESS

IT PAYS TO KNOW *MORE* ABOUT

HERCULES

SOR RAYON

HER HERCULES
TRIBUTION TO
TER TEXTILES

Year after year, rayons have been progressively improved in strength and all-round durability—making them more useful today than ever before. While Hercules does not make rayon, it has contributed largely to these tougher fibers and fabrics by developing and supplying a major share of the improved raw materials that go into the manufacture and finishing of viscose, acetate, and cuprammonium rayons.

For example, Hercules Chemical Cotton is the basis of the remarkably tough, high-tenacity viscose rayon used for automobile and truck tire cords and other industrial products. Furnished in loose or sheet form, Hercules Chemical Cotton is so carefully controlled during processing that it can be literally made-to-order for the consuming industry.

Another example of Hercules' research toward better rayon is chemically-pure Cellulose Acetate, basis of acetate rayons for the sheerest dress materials and the toughest sport clothing fabrics. Produced in all useful ranges of acetyl contents and viscosities, Hercules Cellulose Acetate meets every need for these types of rayon.

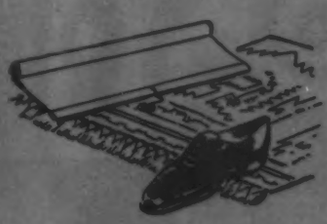
Chemical cotton and cellulose acetate are just two Hercules' contributions to better textiles. Other Hercules chemical materials, widely used in the processing of rayon and other textiles, are listed at right. Mail the coupon today for complete details on any of these products.

*Reg. U. S. Pat. Off. by Hercules Powder Company

Other Hercules chemical materials for the textile industry include:

B-3 Reagent...
Used as a delustering agent in the processing of rayon, both in manufacturing and finishing operations.

Clorafin*...
Hercules low-cost chlorinated paraffin for flame- and water-resistant coatings for canvas and other textiles.



Flexalyn*...
An economical binder for corn and other starches for back-sizing carpets, shoe and tag cloth filling, window shades.

Pine Oil...
Yarmor* 302-W pine oil is a low-cost wetting agent and penetrant used in wet processing all textile fibers.

Terpesol* 8...
One of a series of solvents and plasticisers for textile chemicals. An excellent dispersant for pigments.

Nitrocellulose...
Hercules nitrocellulose and ethyl cellulose are the basis for rapid drying, durable, brilliant textile coatings.

FOR FURTHER DETAILS

HERCULES POWDER COMPANY
INCORPORATED
994 Market Street, Wilmington 99, Delaware

Please send information on_____

_____

*Name*_____

*Title*_____

*Company*_____

*Street*_____

*City*_____ *State*_____

T-63

HEMICAL MATERIALS FOR
E TEXTILE INDUSTRY

THIS QUICKER BLEACH

Eliminates Re-Runs... and Saves Steam

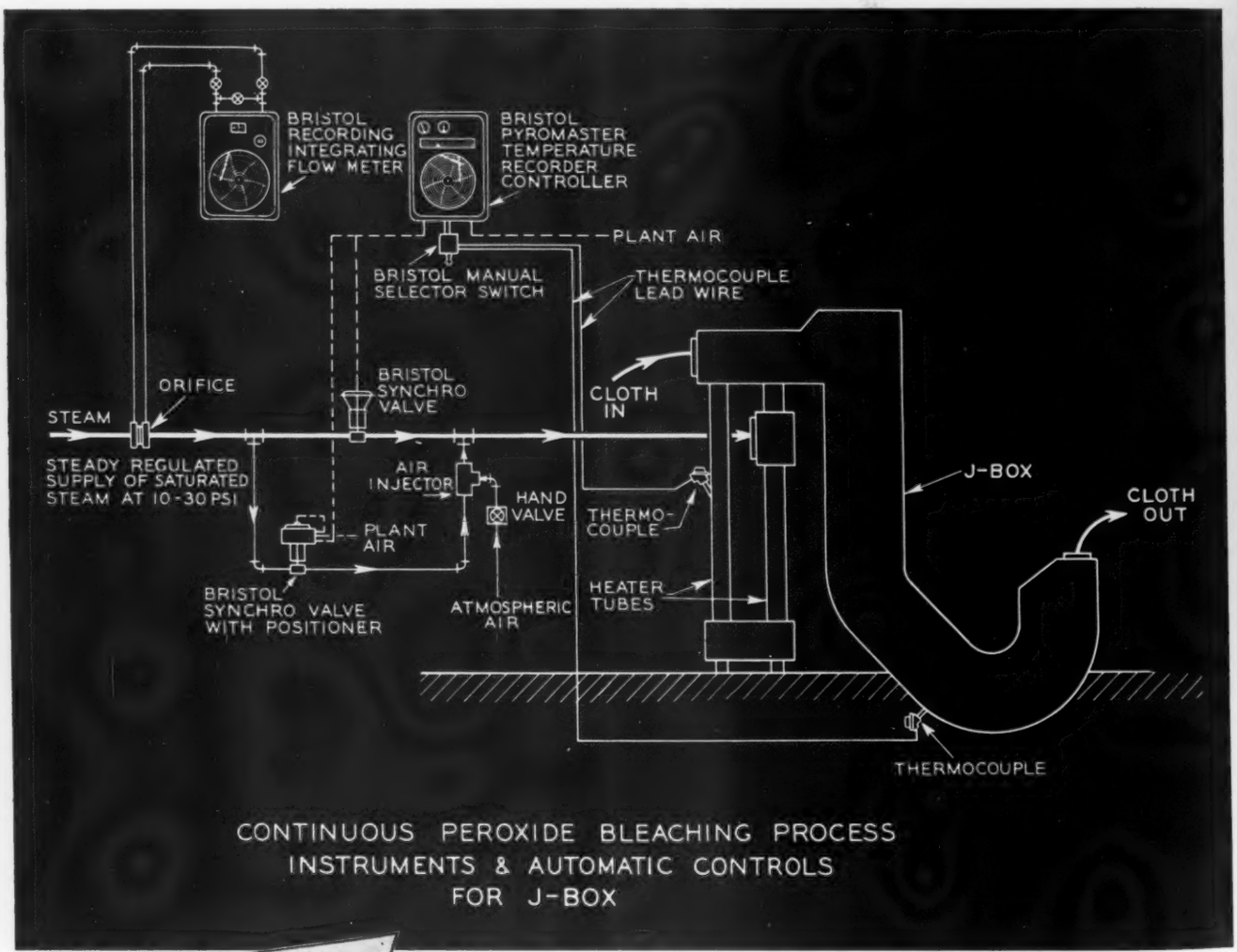
Constant automatic temperature control contributes to the efficiency of the Continuous Peroxide Bleaching Process for cotton goods, which cuts bleaching time to about one-sixth, eliminating re-runs and saving steam.

In the diagram below, showing details of the J-Box, the Bristol Temperature Controller records and controls temperature in outside heater tube by regulating the valve in the main steam line.

This Bristol instrument has a special design of thermocouple which permits taking the accurate temperature of the cloth at any desired location inside the "J" box. A number of temperatures can be taken within the "J" box by a single instrument. Both potentiometer and thermocouple are easily serviced "on the job."

The other Bristol instrument shown in the diagram is a Recording-Integrating Flowmeter which records the rate of flow and provides totalized flow on a 6-figure counter. Many other Bristol instruments are selected for automatically indicating, recording and controlling at other points in the continuous system.

THE BRISTOL COMPANY, 157 Bristol Road, Waterbury 91, Connecticut.



CONTINUOUS PEROXIDE BLEACHING PROCESS
INSTRUMENTS & AUTOMATIC CONTROLS
FOR J-BOX

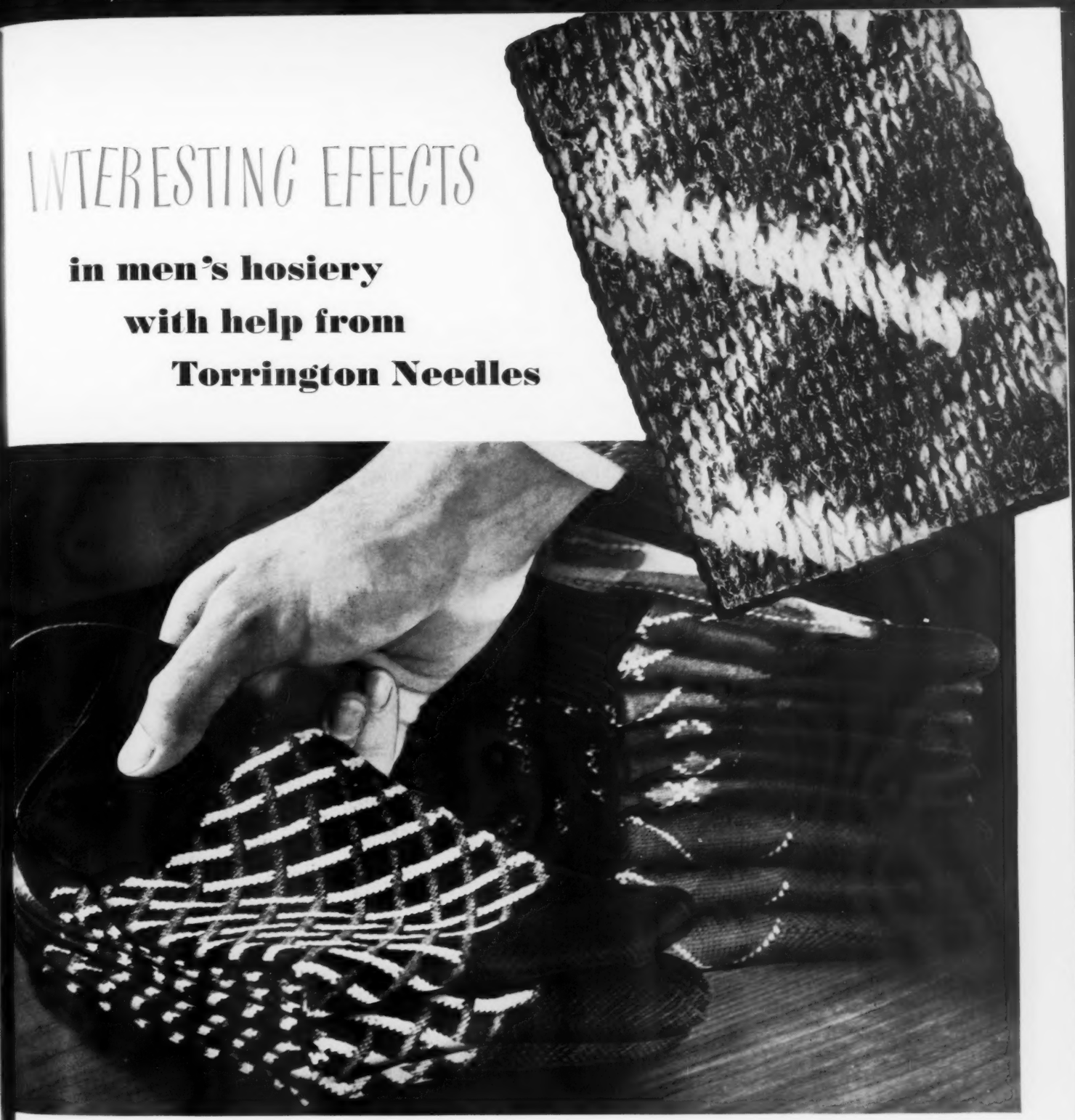
BRISTOL

Engineers process control for better products and profits

AUTOMATIC CONTROLLING AND RECORDING INSTRUMENTS

INTERESTING EFFECTS

in men's hosiery with help from Torrington Needles

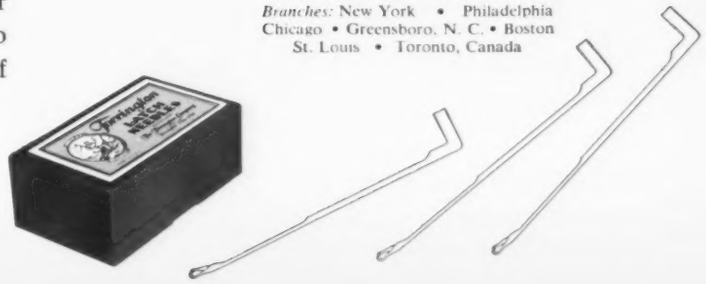


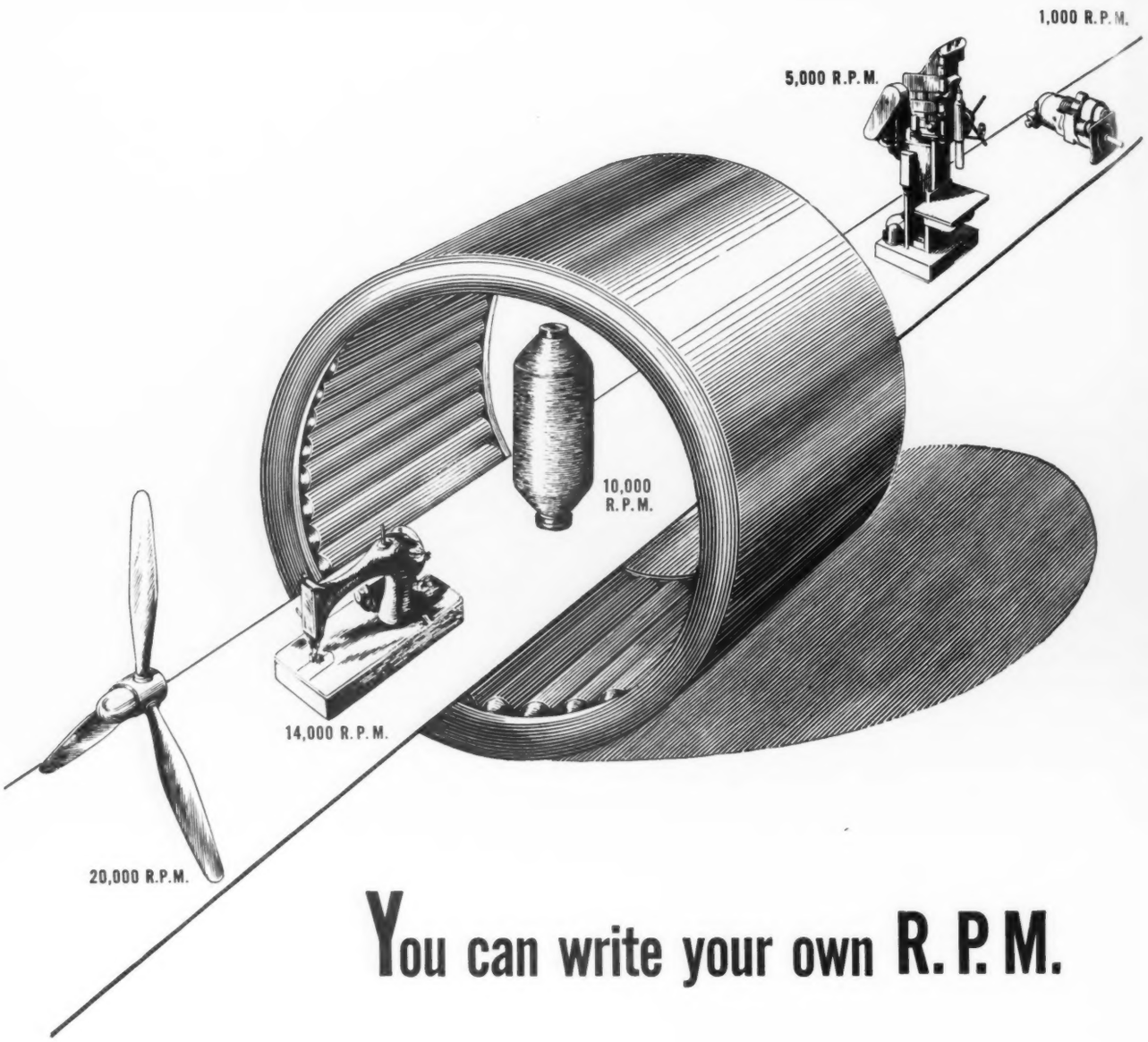
FREED from color and pattern restrictions and supplied with an increasing variety of yarns, manufacturers of men's hosiery are making up for the drab war years. Typical of the interesting and colorful new effects now being achieved in many lines is the example illustrated here.

Whatever the colors or patterns you plan in your new lines, remember that fine knitting can enhance their appeal. Let Torrington Needles help your machines "do justice" to your finest designs and produce knitting of quality!

TORRINGTON
Latch Needles

THE TORRINGTON COMPANY
Established 1866
Torrington, Conn., U. S. A.
Branches: New York • Philadelphia
Chicago • Greensboro, N. C. • Boston
St. Louis • Toronto, Canada





You can write your own R.P.M.

It's a fact...there is no practical speed limitation on the application of Torrington Needle Bearings. It is necessary only that the proper provisions be made for lubrication and precision assembly normally applied for high speed operation.

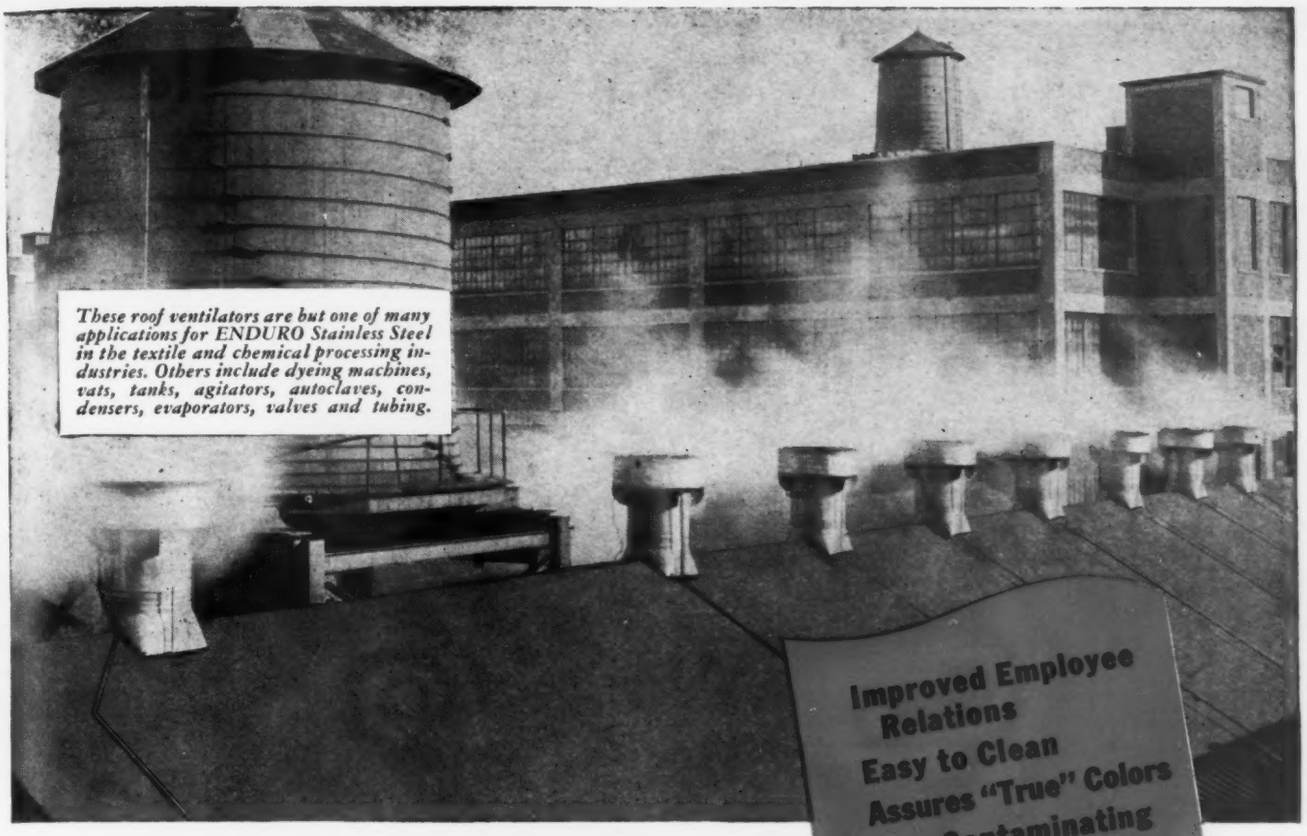
Torrington Needle Bearings have been employed commercially in rotating applications at speeds in excess of 20,000 r.p.m. with complete success. In addition, in one test installation Torrington Needle Bearings were operated at a speed of 50,000 r.p.m. for more than *three years* and showed only negligible wear.

Thus, if you are seeking higher speeds as one means of increasing product efficiency, you can virtually write your own ticket for practical operating speeds in so far as the use of Needle Bearings is concerned. This advantage—plus the low cost, compact size, high capacity, efficient lubrication and ease of installation of these modern, anti-friction units—is accounting for their increasing use in many fields.

If you are not completely familiar with many of the ways in which Needle Bearings are being utilized in your own industry, our Catalog 32, which will bring you up to date on practical Needle Bearing applications, is also an excellent source book for much engineering data. Your copy will be sent upon request.

THE TORRINGTON COMPANY
TORRINGTON, CONN. • SOUTH BEND 21, IND.
Offices in All Principal Cities

TORRINGTON NEEDLE BEARINGS



These roof ventilators are but one of many applications for ENDURO Stainless Steel in the textile and chemical processing industries. Others include dyeing machines, vats, tanks, agitators, autoclaves, condensers, evaporators, valves and tubing.

Enduro Pays in many ways

- Improved Employee Relations
- Easy to Clean
- Assures "True" Colors
- Non-Contaminating
- Resistant to Rust and Corrosion
- Strong—Long Lasting
- Easy to Fabricate
- Universal Acceptance
- Low Ultimate Cost

Among the major reasons why Republic ENDURO Stainless Steel is a "natural" material for chemical and textile processing applications is its inherently high resistance to rust and corrosion.

Consider the case of these textile dyeshop roof ventilators. When made of ordinary steel, the high cost of replacing corroded ventilators every six months was dwarfed by the costly annoyance of rusty drippings which contaminated dyes and damaged materials.

After they were made of long-lasting ENDURO, however, these ventilators ceased being a source of constant maintenance and replacement expense. Rusty drippings were ended.

Perhaps you, too, have applications in which this and other ENDURO advantages effectively can reduce operating overhead. Talk to your equipment manufacturer, or write us for complete information:

REPUBLIC STEEL CORPORATION

Alloy Steel Division • Massillon, Ohio

GENERAL OFFICES: CLEVELAND 1, OHIO

Export Department: Chrysler Building, New York 17, New York

MID AMERICA EXPOSITION CLEVELAND

Republic

ENDURO STAINLESS STEEL

Reg. U. S. Pat. Off.

Other Republic Products include Carbon and Alloy Steels—Pipe, Sheets, Strip, Plates, Bars, Wire, Pig Iron, Bolts and Nuts, Tubing

PREFERRED

Stencil Marked for Prompt Identification.

Illegible addressing causes delays and lost shipments.

Do your shipments receive preferred handling in transit to your customers? Stencil addressed shipments get preferred handling...

Stenciled Shipments Roll Faster!

Why? Common carriers recommend stencil addressing. Stencil addressed shipments are clear–easily read–permanently marked–and eliminate illegibility–labels coming off–speeds delivery–*due to prompt identification in transit.*

Stencil addressed shipments keep your packages out of the carriers' Lost Shipment Warehouse.

DIAGRAPH-BRADLEY

STENCIL MACHINE CORPORATION

ST. LOUIS 8, MISSOURI

DISTRIBUTORS IN PRINCIPAL CITIES–SEE CLASSIFIED SECTION–TELEPHONE DIRECTORY–STENCIL CUTTING MACHINES

D.B.

REG U. S PAT. OFF.

THE WORLD'S OLDEST AND LARGEST MANUFACTURER OF STENCIL CUTTING MACHINES

Complete Shipping Room Supplies

a top name in flannels ... uses

LAWRENCE SPINNA CALF

—the top name in roll covering

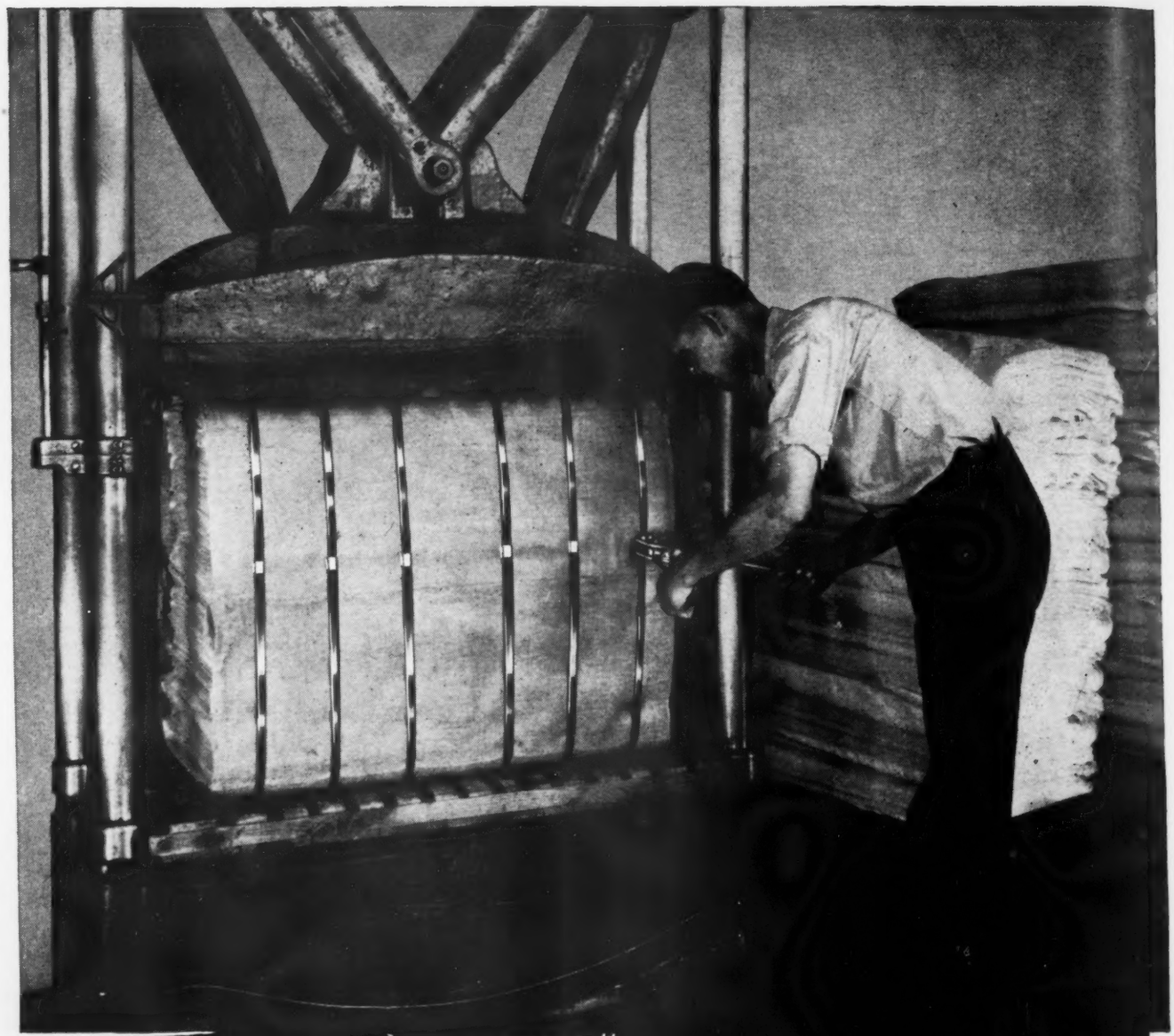
When you can be sure of a roll covering that has the right frictional surface required for smooth, sure drafting . . . is non-sweating . . . and will hold its shape and "body" despite the constant pressure and friction of the yarn . . . there's no need to experiment.

Many "big name" mills insist that nothing takes the place of calfskin for fine spinning—and Lively Spinna Calf has become, through the years, the most generally used calfskin. Tell your roll coverer you want Spinna.

A. C. Lawrence Leather Company, Peabody, Mass.
Manufacturers of Lawrence Calfskins — *1st choice for aprons.*
Represented by H. H. Hersey, Greenville, S. C.

A. C. LAWRENCE LEATHER CO. TEXTILE LEATHERS PEABODY MASS.

EVERY YEAR MORE PEOPLE DECIDE LEATHER IS BEST



"BOUND TO GET THERE"

Boxed, Bundled or Baled!

...WITH Acme Steelstrap

REG. U. S. PAT. OFF.

No matter how your textile product goes, it will move more secure against everyday shipping hazards when banded with Acme Steelstrap.

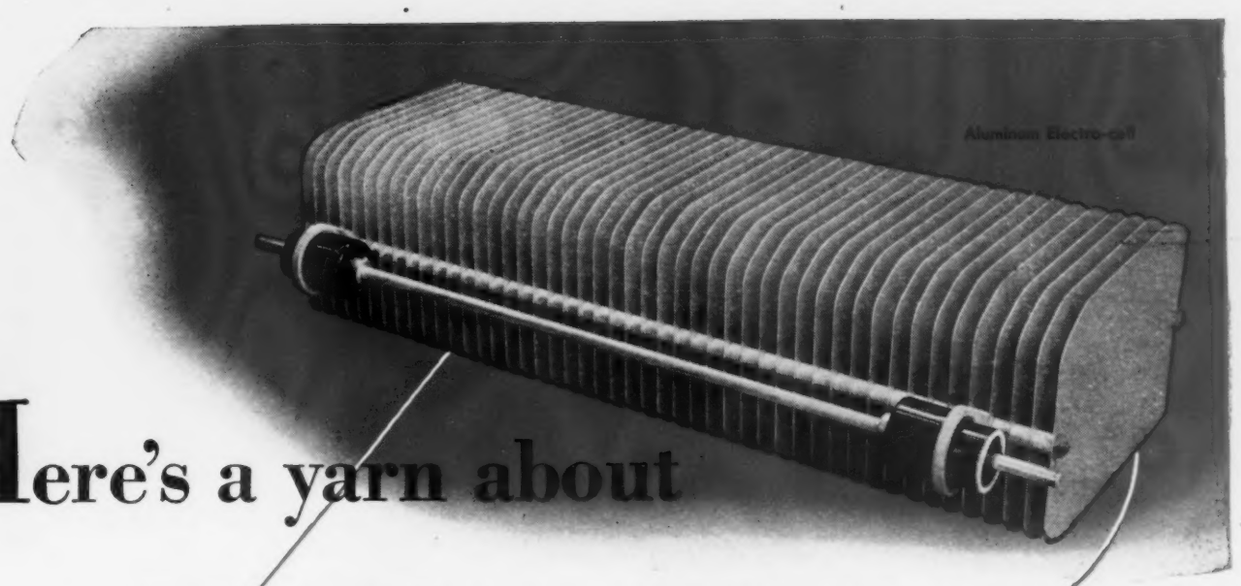
You save, too, on warehousing space, shipping weight, dunnage, freight claims . . . and profits rise proportionately.

So, whether your textile shipments are single units, carloads of freight, or ships' cargoes . . . use Acme Steelstrap for boxing, bundling, or baling. It means the most efficient shipping pack.

NEW YORK 17 ATLANTA CHICAGO 8 LOS ANGELES 11

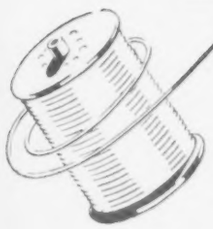
ACME STEEL COMPANY

ACME STEEL CO. CHICAGO



Here's a yarn about

ELECTRONICS . . TEXTILE MILLS and ALCOA ALUMINUM

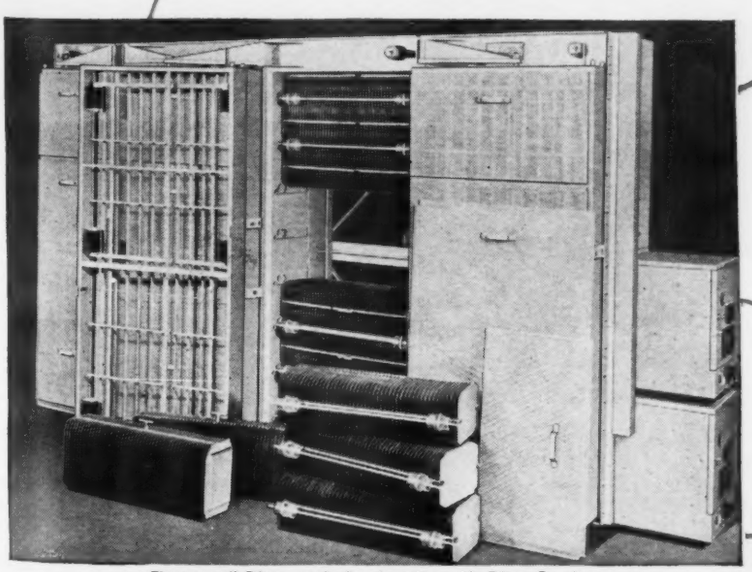


The why and how of electronics and its magic in air filtration, by use of aluminum collector-plate cells, leaves us a little breathless, but—the need for the super clean air it produces for textile mills, we do understand. It means the elimination of smoke and soot contaminated air which can streak and stain fabrics being processed.

Alcoa Aluminum is being used generously in the manufacture of this equipment. Functionally, it is the *right* material, the right weight . . . nonmagnetic, high in electrical conductivity, corrosion resistance, and it's durable.

Alcoa Aluminum is *right* for textile mill installations because it will not rust. Condensation is not discolored; drips from overhead air conditioning ducts and exhaust hoods cause no stains, no seconds. Alcoa Aluminum, highly resistant to corrosion, requires no protective paint to prolong its service life. The metal can be left bare and bright. Maintenance costs are extremely low.

When buying air conditioning or any equipment for your mill, don't hesitate to ask your supplier "Is it made of aluminum?" If it's Alcoa Aluminum, it's best! ALUMINUM COMPANY OF AMERICA, 1942 Gulf Building, Pittsburgh 19, Pennsylvania.



Electro-cell Filter made by American Air Filter Co., Inc.

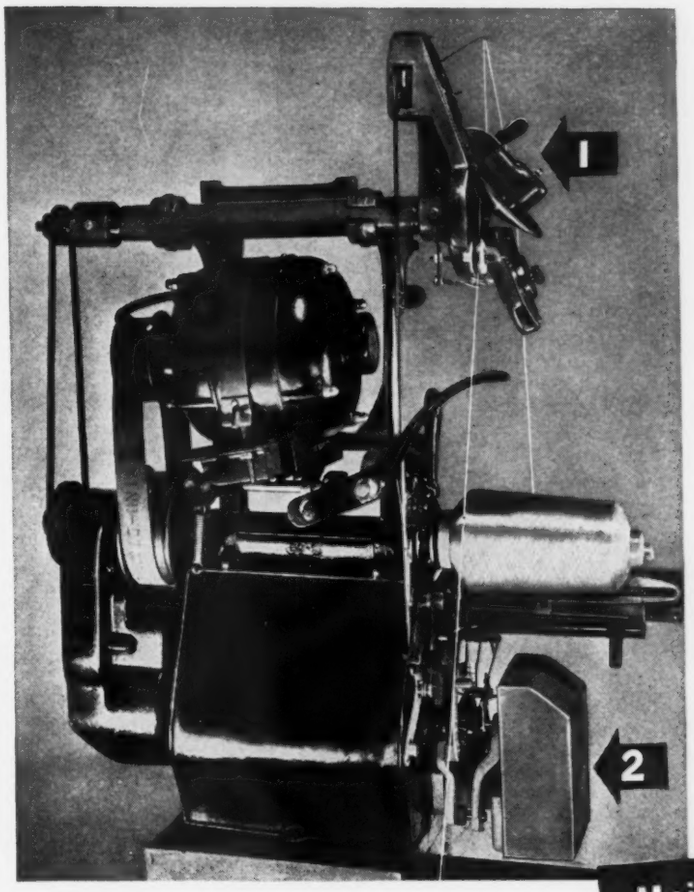
ALCOA FIRST IN ALUMINUM

ALCOA ALUMINUM

FOR TOMORROW'S
SUPERFINISHES...
PERKINS
B. F. PERKINS & SON, INC.
HOLYOKE · · · MASSACHUSETTS

For a perfect package at lower cost

—THE KIDDE TENSION AND DENSITY CONTROL



Here's a simple, sure-fire way—tested and *proved* in mill operation—to get a perfect package at substantial savings in cost.

The Kidde Tension and Density Control...

- Provides great uniformity of weight and yardage.
- Speeds up warping of high twist yarns.
- Reduces over-run from thread mills.
- Assures even colors on package dye yarns.
- Eliminates shiners and crossovers.
- Is excellent for winding crepe yarn for cone warping.
- Is adaptable to ball winding of knitting wool.

On raw and covered rubber, nylon, rayon, and special applications of dye package work, this precision Kidde attachment will quickly repay your original investment. Continued savings will be reflected in your profits.

On crepe yarns, filament rayon, spun and blended synthetics, and specialty and sale yarns, the Kidde Tension and Density Control assures superior quality, *combined* with substantial cost economies.

The Tension and Density Control is easily installed on your present Universal 50 Winders.

1. *The Tension Control* accurately maintains tension at any desired value, *down to practically zero grams.* An arm feeds yarn onto package . . . drawing supply through driven conical rolls, delivering it to package at predetermined tension. Control arm automatically compensates for supply variations by guiding yarn into the conical feed rolls at the right point to maintain correct surface speed. A stop motion controls yarn breakage or snarling.

2. *The Density Control* is operated by a package guide bar which maintains constant, uniform contact with package. As diameter of package increases, pressure between bar and package also increases. This increasing pressure automatically operates a mechanical trip, which allows the "back" to recede. Ironing pressure is thus restored to normal, and density of package maintained at predetermined rate.

Mail Coupon for Bulletin

Walter Kidde & Company, Inc.
491 Main Street
Belleville 9, New Jersey

Gentlemen:

Please send me your bulletin, "Precision Textile Winding."

Name.....

Position.....

Company.....

Street Address.....

City and State.....

Walter Kidde & Company, Inc.
491 Main Street, Belleville 9, New Jersey

Kidde

The word "Kidde" and the Kidde seal are trade-marks of Walter Kidde & Company, Inc.

First Fifty Years

of

NON-FLUID OIL

April 21, 1896-1946. As we celebrate our fiftieth anniversary of lubrication service to industry, the factors which contributed so greatly to our development come to mind—like so many footprints on the sands of time.

While we are grateful for the advancements in industry that favored our first fifty years of growth, we feel a special gratitude and loyalty to the many companies who for so many years—either as customers, suppliers or technical collaborators—supported our efforts. These associations invaluably enriched our experience, and aided our efforts to achieve our present high standing in industry.

We begin our Golden Anniversary better equipped than ever to serve industry. We have no reconversion problems because our war efforts were concentrated solely on the expansion and production of NON-FLUID Oil. We stand on the threshold of a new era —one that we hope and pray will also be the "Golden Age of Man."

Southern District Manager

FALLS L. THOMASON, Charlotte, N. C.

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NON-FLUID OIL
TRADE MARK REGISTERED

NEW YORK & NEW JERSEY LUBRICANT CO.

292 MADISON AVENUE, NEW YORK 17, N.Y.

TECA*
fiber for tropicals
There's a post-war summer coming up — and handsome, heat-beating Teca suitings are ready to meet the heavy demand.
Here are famous-name tropicals — zephyr-weight spun rayon blends woven with thirty to seventy-five per cent of this lively *crimped* acetate staple in combination with spun viscose staple.
The more Teca, the richer the weave, the better its shape-holding qualities, the greater its resistance to shrinkage.
For all types of men's wear fabrics — for suits, shirts, slacks and lounging robes — Teca is out in front.
*EASTMAN CRIMPED ACETATE RAYON
For further information about TECA consult A. M. Tenney Associates, 10 East 40th Street, New York 16, sales representatives for TENNESSEE EASTMAN CORPORATION (subsidiary of the Eastman Kodak Company), KINGSPORT, TENNESSEE.

How to know Fluorescent Lamps from the inside out . . .

1 ***You could break off the end*** of a fluorescent lamp and look inside. But looking alone isn't enough. If you're as careful as General Electric, you'd have to make 480 tests and inspections to be absolutely sure of the quality of the lamp. You'd have to study the "coiled-coil" tungsten cathode, which helps determine how many times the lamp starts; you'd have to measure the quality and quantity of the chemical coating on the cathode, which has an important bearing on lamp life; you'd have to test the tightness of the glass-to-metal seal, because even a tiny leak will soon reduce light output. And that would just be the start.

2 ***. . . Or you can insist on the GE mark*** on the fluorescent lamps you buy for your office and plant. Everything that goes into a G-E fluorescent lamp is carefully tested — every completed lamp goes through a series of exacting tests—to assure you of perfect performance. *And remember—General Electric lamp research is constantly at work to improve G-E lamps and make them Stay Brighter Longer.

G-E LAMPS

GENERAL ELECTRIC

Production-Wise and Sales-Wise

STANDARD DURENE in hosiery and knitwear pays

Smoother, faster production, greater comfort, wear and beauty with STANDARD DURENE... a fine quality cotton staple... spun, twisted and mercerized in our own plants under rigid controls. Plan now to profit production-wise and sales-wise with STANDARD DURENE.

★ ★

STANDARD DURENE • SELO • PREEMO • COMBED SAKS • THREADS

SPINNERS-TWISTERS-DYERS-BLEACHERS S-C-T

STANDARD-COOSA-THATCHER CO.

CHATTANOOGA 1, TENN.

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Textile mill eliminates painting windows

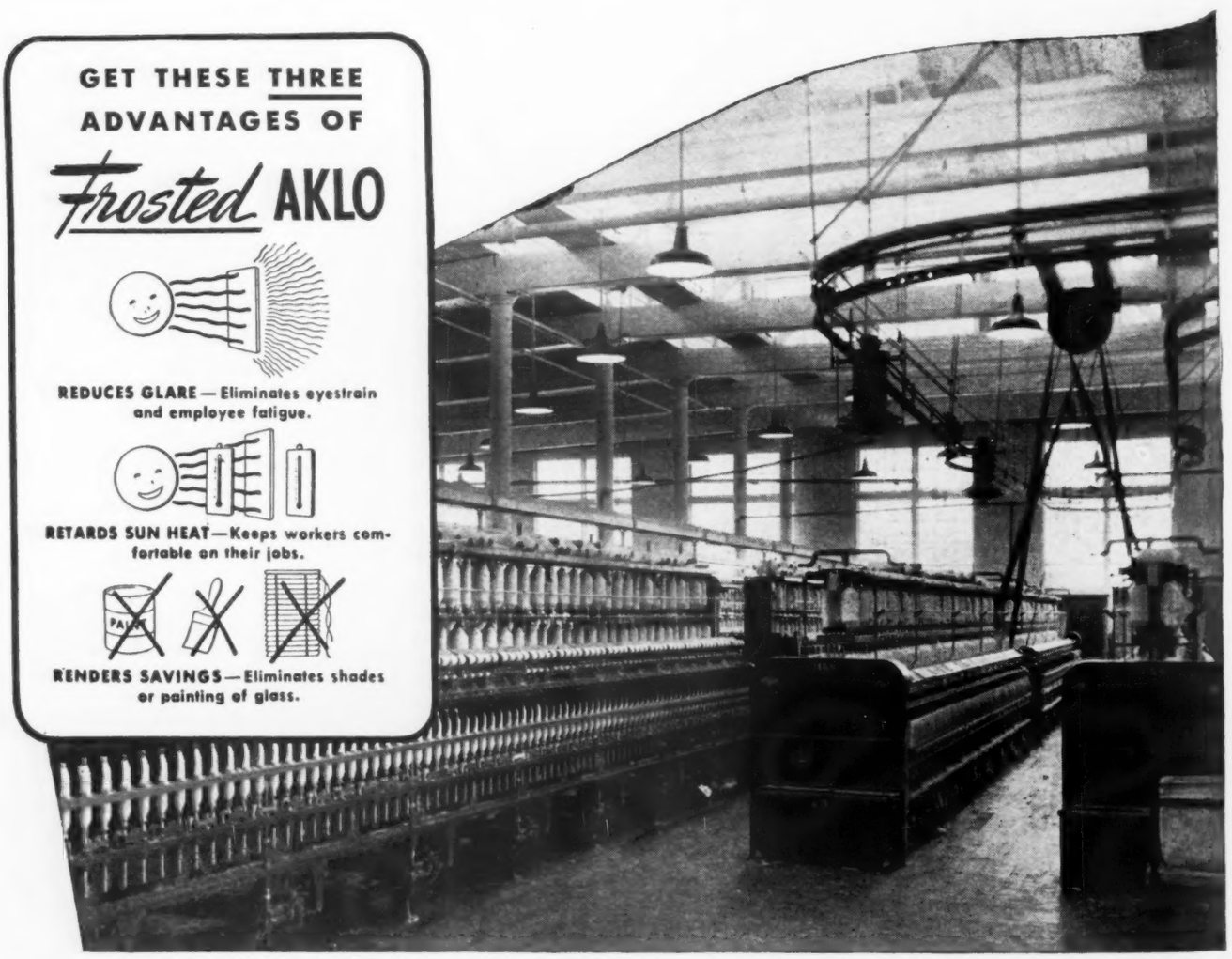
BY USING *Frosted* AKLO GLASS

About 3,600 square feet of *Frosted* AKLO Hammered glass were put into the windows of this cotton mill to eliminate painting regular glass. The AKLO installation resulted in a nicer looking exterior and interior and *more even lighting* for workers.

In textile mills, where reduction of sun glare and heat, and humidity control are essential, *Frosted* AKLO glass provides a happy solution. It is particularly helpful in keeping employees more contented in their work.

Frosted AKLO is a special cool-appearing blue-green glass for industrial glazing. Besides reducing glare, it cuts down sun heat . . . makes interiors more comfortable for workers. It eases the load on air conditioning equipment . . . improves the general appearance of the plant and eliminates the expense of shades, curtains or painting of regular windows.

Frosted AKLO is manufactured by the Blue Ridge Glass Corporation, Kingsport, Tennessee. Your Libbey·Owens·Ford distributor will be glad to show you the Radiometer test to demonstrate *Frosted* AKLO'S advantages. For complete information, write to Blue Ridge Sales Division, Libbey·Owens·Ford Glass Company, 9946 Nicholas Building, Toledo 3, Ohio.


GET THESE THREE
ADVANTAGES OF
Frosted AKLO
REDUCES GLARE—Eliminates eyestrain and employee fatigue.
RETARDS SUN HEAT—Keeps workers comfortable on their jobs.
PAINT
RENDERS SAVINGS—Eliminates shades or painting of glass.

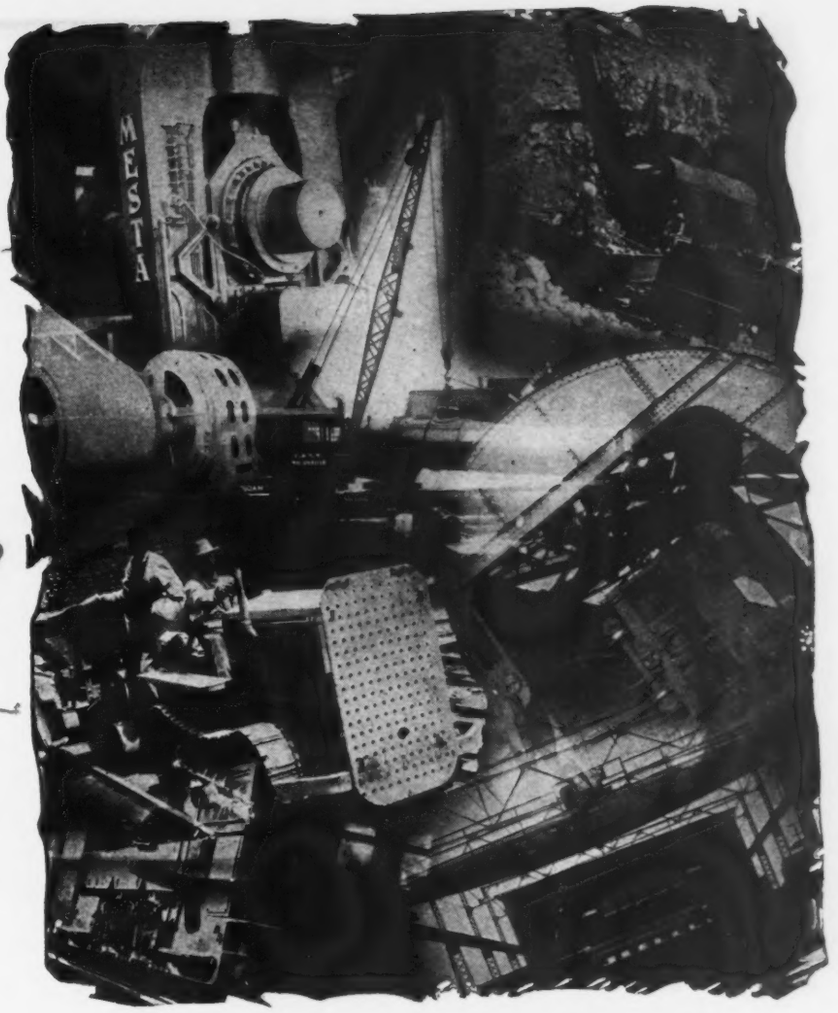
L O F

BLUE RIDGE AKLO GLASS

Heat-Absorbing · Glare-Reducing · Figured and Wire Glass

BLUE RIDGE GLASS CORP. MANUFACTURERS OF QUALITY GLASS KINGSPORT, TENN.

"No bearing troubles..."



...with Tycol E.P. Lubricants"

"Not a bearing overheated . . .
Service-life doubled . . .
Races undamaged . . .
Better performance . . .
Maintenance costs cut . . ."

– were the statements made recently by a lubricating engineer. "Yet," he went on. "the anti-friction bearings in our plant operate continuously under severe heat and moisture conditions — tremendous loads."

This is one of the many uses of Tycol E. P. Lubricants. For more information call. write, or wire your nearest Tide Water Associated Office.

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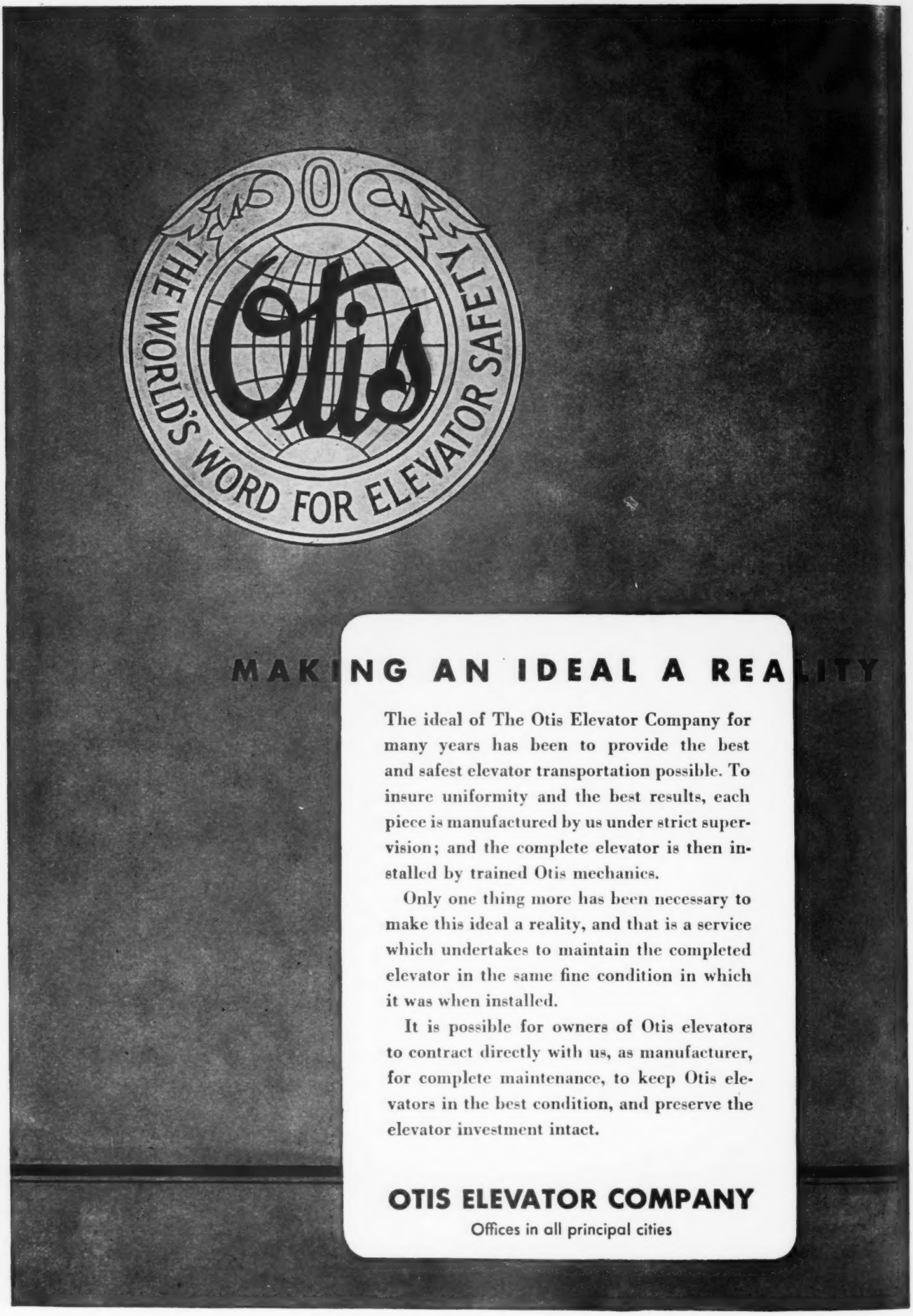
TIDE WATER ASSOCIATED OIL COMPANY
17 BATTERY PLACE • NEW YORK 4, N. Y.

LUBRICATION—"ENGINEERED TO FIT THE JOB"


THE WORLD'S WORD FOR ELEVATOR SAFETY
Otis
MAKING AN IDEAL A REALITY
The ideal of The Otis Elevator Company for many years has been to provide the best and safest elevator transportation possible. To insure uniformity and the best results, each piece is manufactured by us under strict supervision; and the complete elevator is then installed by trained Otis mechanics.
Only one thing more has been necessary to make this ideal a reality, and that is a service which undertakes to maintain the completed elevator in the same fine condition in which it was when installed.
It is possible for owners of Otis elevators to contract directly with us, as manufacturer, for complete maintenance, to keep Otis elevators in the best condition, and preserve the elevator investment intact.
OTIS ELEVATOR COMPANY
Offices in all principal cities

THE MOST POPULAR HOSIERY DYEING MACHINE IN THE WORLD!

It is conservatively estimated that at least nine out of every ten pairs of hosiery made in the United States and Canada are dyed in Smith-Drum Machines. Throughout the world they are the most widely used machines of their types.

This outstanding leadership has been earned entirely by the dependable performance which these machines have always delivered. Advanced design, careful workmanship, finest materials and rugged construction are built into every Smith-Drum Machine. Many have been in daily operation for twenty-five years and longer. Even when a Smith-Drum Machine comes into the factory for overhauling, it can usually be put into "new-machine condition" at nominal cost.

When considering new hosiery dyeing machines . . . remember this record of performance . . . remember that the installation of a Smith-Drum will keep your operating and maintenance costs at a minimum for many years to come. Complete information will be sent upon request.

Four times winner of Army-Navy "E"

Send for a copy of this Booklet

SMITH, DRUM & COMPANY
Allegheny Avenue at 5th Street, Philadelphia 33, Pa.

SMITH-DRUM. PROCESSING MACHINERY

for hosiery dyeing, skein dyeing, package dyeing, beam dyeing, piece goods dyeing, package extracting, package drying, skein mercerizing, warp mercerizing, hosiery inspection.

MAXITORQ FLOATING DISC

IF YOU NEED *Instant Overload Release*

. . . *the* MAXITORQ-CLUTCH *is your Buy*

Certain types of high speed automatic machinery which handle breakable or damageable products require fast disengagement in event of overload. To meet these demands we have perfected and incorporated an entirely new action into the Maxitorq Floating Disc Clutch. It may be manually adjusted to a sensitivity that will instantly disengage the clutch at any overload condition.

Note the cams on the photograph at left . . . which instantly and automatically slip the clutch positively into neutral.

TESTED AND PROVEN

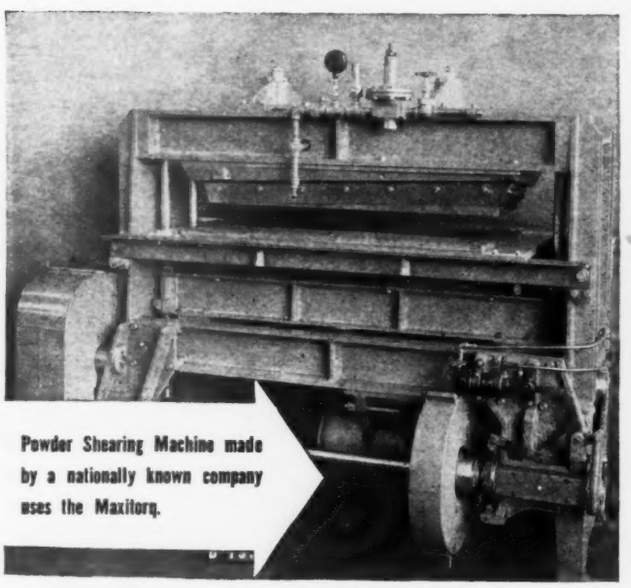
While the Maxitorq Automatic Overload Release Clutch is new, several leading machinery manufacturers report that careful tests under high speed operation have clearly proven its definite advantages in preventing damage to work and equipment. This is especially true, for instance, on machines which label bottles or process other breakable objects.

ALL OTHER MAXITORQ FEATURES

This new clutch has the Floating Disc construction . . . "you can see between them" . . . no drag, no abrasion, no heating in neutral. Also . . . the entire clutch may be taken apart, assembled and adjusted WITHOUT THE USE OF TOOLS.

CLUTCH CAPACITIES AND TYPES

The Maxitorq is made in both single and double types, wet or dry and in capacities from 1/4 to 15 H.P. at 100 R.P.M. Pulley and Cut-off Coupling types are also available in the same standard capacities.



Powder Shearing Machine made by a nationally known company uses the Maxitorq.

STANDARD SINGLE CLUTCH

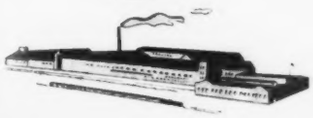
This Maxitorq is used in the above machine . . . the Overload Release feature not being required. Machinery and machine tool builders from coast to coast find that Maxitorq handle their power transmission problems "with the greatest of ease".

SEND FOR CATALOG NO. 464

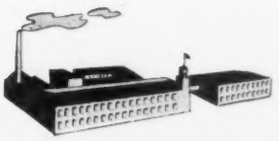
THE CARLYLE JOHNSON MACHINE COMPANY
MANCHESTER CONNECTICUT

TRADE MAXITORQ MARK

Conveniently yours



PROVIDENCE



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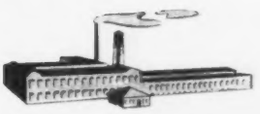

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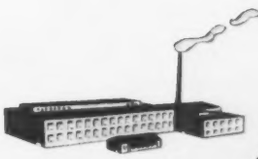


CHATTANOOGA

A 4 PLANT YARN DYEING SERVICE

A telephone call or letter can put you in contact with the Franklin Process Yarn Dyeing Service. The most complete service of its type now available, it includes assistance in obtaining yarn and help in color selection if desired.

All four of the strategically located Franklin Process plants, with a total capacity of 600,000 lbs. a week, cooperate to handle each order, and the one, or more, plants which can serve you best at the time do so; delivering the yarn on put-ups best fitted to your specific requirements. Regardless of which of the four plants fills your order, color quality will be the same, for all four use the same formulas for standard shades, and the same dyeing equipment, the famous Franklin Process Dyeing Machines.

Why not make the Franklin Process Yarn Dyeing Service "Conveniently Yours" NOW?

Franklin Process

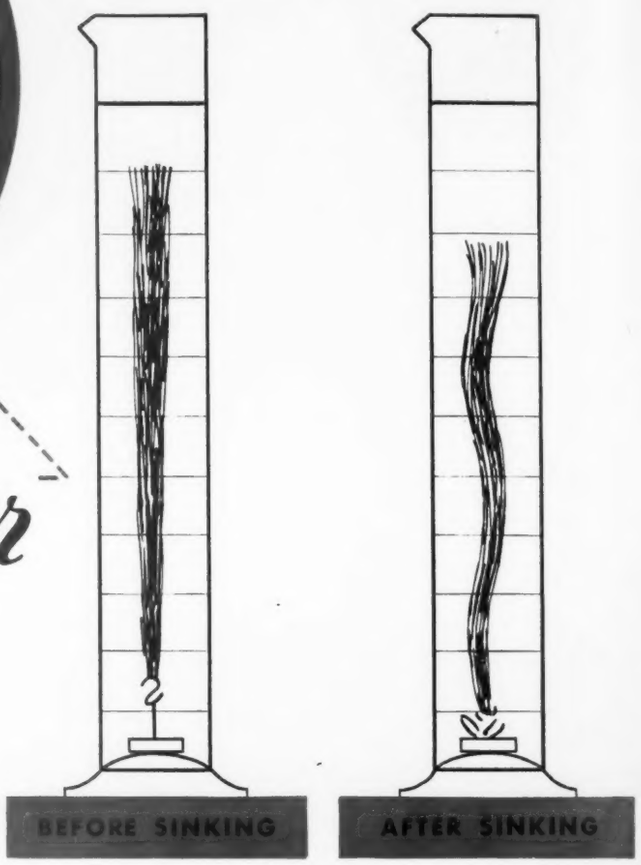
LARGEST PACKAGE DYERS IN THE WORLD

Providence • Philadelphia • Greenville
Chattanooga

New York Representative, 40 Worth Street

THE NEW AHCOWET RS

it's 25% faster



HAS 100% MORE LIME STABILITY

AHCOWET RS was such an outstanding wetting agent in the beginning that there seemed little opportunity for improvement. However, our laboratory has accomplished the "impossible", coming up with a product that is 25% more effective as a wetting agent and which has 100% greater lime stability. To the best of our knowledge this new product is unequalled from an economy or a quality standpoint.

OTHER PROPERTIES. Ahcowet RS is also an excellent softener and an all-purpose penetrant, having a pH range of 1 to 11. In the presence of strong acids up to 2% concentration, it wets instantly and concentrations of calcium and magnesium salts up to 700-750 parts per million have no effect on its wetting efficiency. It should not be used in alkaline baths above a pH of 11.

APPLICATION. Ahcowet RS is excellent for use in dye baths, in sanforizing and in all types of finishing where a wetting agent is required under neutral or acid conditions, or where the concentration of caustic soda does not exceed .05%.

Send for a free sample today.

ARNOLD-HOFFMAN & CO., INC.

MANUFACTURING CHEMISTS

ESTABLISHED 1815 — PLANTS AT DIGHTON, MASS. AND CHARLOTTE, N. C.
PROVIDENCE, RHODE ISLAND

NEW YORK BOSTON PHILADELPHIA CHARLOTTE

3 reasons for using *PC FOAMGLAS* INSULATION in your plant

The ideal insulating material should be
(1) efficient
(2) economical
(3) permanent

PC Foamglas—air sealed in glass cells—is widely known as the insulating material that meets all those requirements.

PLANT owners all over the country have installed this cellular glass material on roofs, ceilings, tanks and processing equipment, in floors and core walls. They can tell you that PC Foamglas licks the toughest insulating jobs—for good.

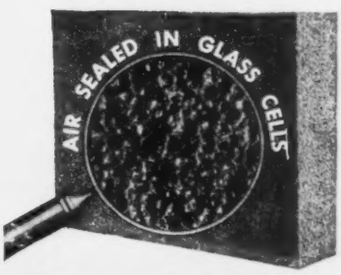
Composed of millions of tiny air-filled glass cells, PC Foamglas is *impervious* to moisture, vapor, vermin, the fumes of most acids, many elements that cause other materials to lose insulating efficiency. It helps to maintain temperature and humidity levels *permanently*.

PC Foamglas is light, rigid, strong. It stays in place, does not pack down, check, warp, rot, swell, shrink, or burn. Big pieces are easily handled, quickly installed. PC Foamglas needs no repairs, maintenance or replacement during ordinary use. And the sum total of those advantages is *economy*. For with PC Foamglas, first cost is last cost.

We have published complete detailed information on PC Foamglas in three illustrated booklets. Send for your free copies today. Just check and mail the convenient coupon. You incur no obligation. Pittsburgh Corning Corporation, Room 133, 632 Duquesne Way, Pittsburgh 22, Pennsylvania.

· *Also manufacturers of PC Glass Blocks* ·

On the addition to Gay Brother's mill at Cavendish, Vermont, PC Foamglas is being installed to help maintain predetermined temperature and humidity levels. Engineer, Alonzo B. Reed, Boston, Mass.; Roofer, Robert J. Hughes, Ludlow, Vermont. Picture at left shows how PC Foamglas is used to insulate a core wall.



PC FOAMGLAS *Waterproof Fireproof* **INSULATION**
T. M. REG. U. S. PAT. OFF.

Pittsburgh Corning Corporation
Room 133, 632 Duquesne Way
Pittsburgh 22, Pa.

Please send along my free copies of the booklets I have checked. It is understood that I incur no obligation.

Roofs_____ Walls_____ Floors_____

Name_____

Address_____

City_____ State_____

WASHER AND DYE PADDER at The Textileather Corp., Toledo, O., utilizes 91 corrosion resistant Inconel covered rolls. Designed by H. L. Perry, plant engineer, for handling automobile upholstery fabric. Capacity 3320 yards per hour. *Fred Christen & Sons Co.*, Toledo, built this equipment in 1940. Inconel covered rolls were fabricated by *The Youngstown Welding & Engineering Co.*, Youngstown, O.

WHEN you need a metal that will stand up in all dyeing processes, investigate Inconel*.

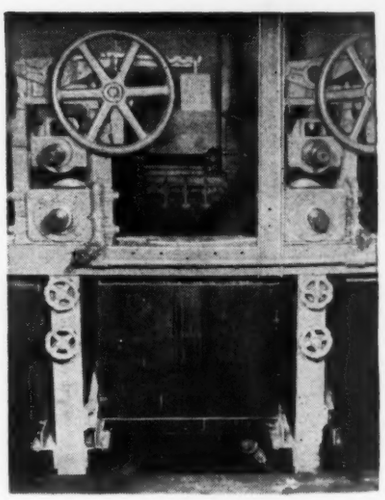
. Its 80% nickel content assures resistance to strong alkalies, chlorides and reducing acids; its 14% chromium content prevents harmful attack by many oxidizing acids.

Inconel stands up against all types of dyes . . . acid and acid chrome . . . direct, vat, sulfur and developed colors. It resists corrosion by dilute hypochlorites and by sizing or other compounds and solutions used to impregnate fabrics. Peroxide bleaches have little effect on Inconel, and the alloy itself — unlike many other metals — does not harmfully accelerate decomposition of the bleach.

Having greater strength and toughness than structural steel, and possessing excellent fabricating and welding properties, Inconel makes possible the construction of extremely rugged, long-lived equipment.

Inconel is available in standard mill forms . . . in sheet and strip . . . in rod, bar, plate and tubing. Let's not forget castings, either. They're available, too. And for equipment requiring plate thicknesses of 3/16" and heavier, you can get Inconel-clad steel . . . at a substantially lower price than solid Inconel.

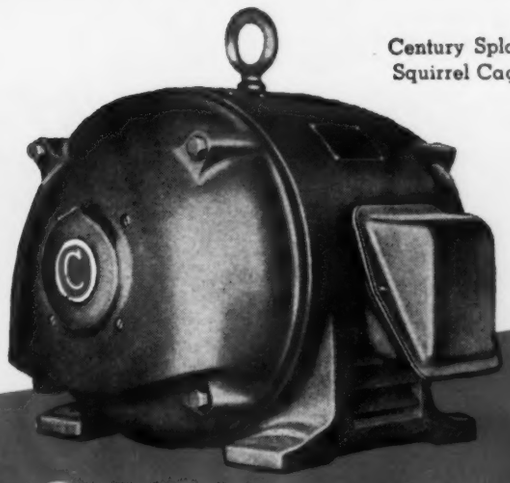
Detailed information on corrosion resistance, mechanical and working properties, and typical uses of this versatile nickel alloy is contained in Technical Bulletin T-7, *Engineering Properties of Inconel*. A copy is yours for the asking. Drop us a line on your letterhead, and we'll see that it's sent promptly. *Reg. U. S. Pat. Off.



CLOSE-UP OF ONE SECTION of the eight-box washer. Welded tank is made of ¼" Inconel-clad steel plate, and contains 7 idler rolls of seamless Inconel tubing, 4" OD x .120 wall x 74⅛" face.

THE INTERNATIONAL NICKEL COMPANY, INC., 67 WALL ST., NEW YORK 5, N. Y.

INCONEL
80 NICKEL — 14 CHROMIUM



Century Splash Proof
Squirrel Cage Motor

Century Splash Proof
Slip Ring Motor

Century Splash Proof Motors

PROTECTED—

FROM A TRICKLE OF LIQUID TO THE FULL FORCE OF A HOSE DURING PLANT WASHDOWN

Century Splash Proof Direct
Current Motor

From a trickle of dripping liquid to the full force of a hose during a plant washdown, Century Splash Proof motors will keep the vital parts of the motor dry — keep them in service longer. They eliminate unnecessary production losses due to dripping or splashing liquid or falling solids which might otherwise damage the vital parts of the motor.

Century Splash Proof motor windings are insulated to resist the damp atmospheres found where splash proof design is recommended. Special insulations are often provided for unusual concentrations of acids and alkali. This gives you additional protection against costly work stoppages.

These motors are ideal for installations on such equipment as pumps, conveyors, agitators, washers, dryers, and many others often encountered in food, chemical, and textile processing. In addition to splash proof designs Century offers a wide range of types and sizes from 1/20 to 600 horsepower.

Specify Century motors on all your electrically powered equipment. They are engineered to the functional characteristics of the machine they drive to assure top performance.

471

Century C MOTORS

CENTURY ELECTRIC CO. 1806 Pine St., St. Louis 3, Mo.

Offices and Stock Points in Principal Cities

One of the many advantages of GAS and MODERN GAS EQUIPMENT—

The flexibility of modern Gas equipment can, in great part, be credited with the introduction of drying and other heat treating operations to the production line, speeding manufacturing processes, enhancing efficiency, improving products. The catalogue of Gas equipment for industrial heat treating is well nigh limitless—it is added to almost daily as research of the American Gas Association and equipment manufacturers broaches new frontiers in service to industry.

Added to the accurate controllability of Gas and its economy in both unit and overall costs, the flexibility of this modern industrial fuel appeals to executives and production men in every type of textile plant. For singeing, warp sizing, quetsch sizing and finishing, for palmer finishing, tenter frame drying and for calendering —for every textile operation requiring heat, there is Gas equipment that is unexcelled for the job.

If you will advise your local Gas Company's Industrial Engineers of your problems in industrial heat applications and what you are anxious to secure in flexibility, speed, economy, better products, they will, without obligation, offer the best solution.

AMERICAN GAS ASSOCIATION
420 LEXINGTON AVENUE, NEW YORK 17, N.Y.

THE TREND IS TO GAS
FOR ALL
INDUSTRIAL HEATING

SULFONATED OILS ACIDS STARCHES
DILUTE ALKALIS SOLVENTS
CASEIN SOLUTIONS GUMS

For High Compatibility...

USE DECERESOL 1861 SOFTENER

DECERESOL* 1861 SOFTENER is an extremely compatible durable type softener composed of surface active colloids. It yields a finish of superior smoothness and suppleness of handle to cottons, woolens, rayons and other synthetics.

DECERESOL 1861 is highly compatible with gums, starches, solvents, acids and dilute alkalies (less than 1% NaOH). When used in proper ratios, satisfactory reaction is obtained with sulfonated oils and casein solutions. In warm water, ordinary stirring produces good dispersion and stable suspension. DECERESOL 1861 also possesses good wetting ability, normally making use of additional wetting agents unnecessary. For further information as to general properties and methods of application, write today to:

✓ **Check These Special Properties of DECERESOL 1861 SOFTENER**

✓ Reduces bleeding of direct colors and crocking of napthol colors. Inhibits gas-fading tendencies of certain acetate colors.

✓ Excellent for yarns and fabrics and for knit goods where maximum elasticity is desired.

✓ Retains softening properties after repeated washing and dry cleaning of fabric.

✓ Will not discolor white goods when specified concentrations are applied.

✓ Yields greater resistance to hot-iron scorching than many cationic softeners.

✓ Will not develop odors on goods. White goods will not retain chlorine when bleached.

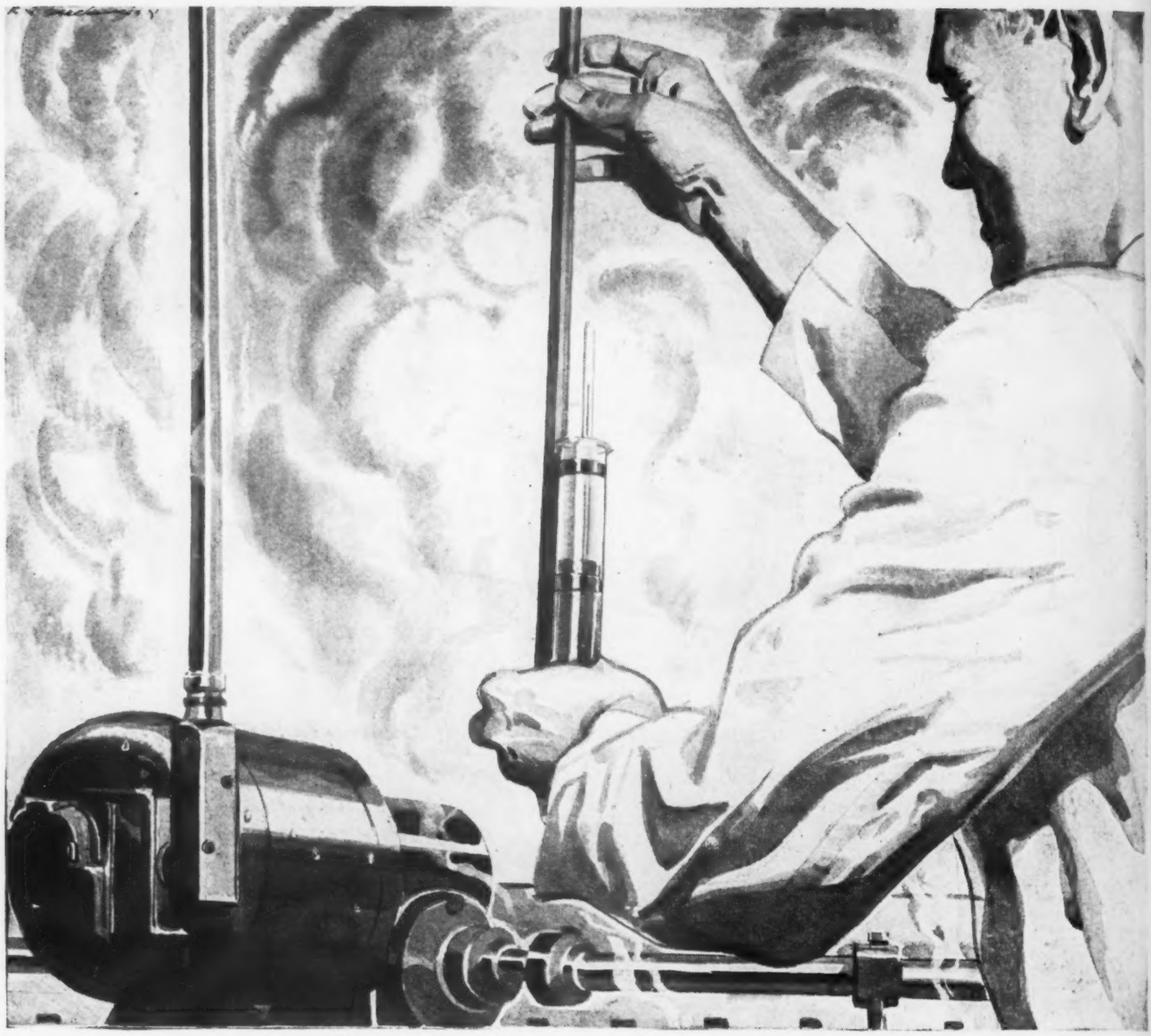
AMONG CYANAMID PRODUCTS FOR THE TEXTILE INDUSTRY ARE: Penetrants • Softeners • Finishes Sizing Compounds • DECERESOL* OT Wetting Agents • PARAMUL** 115 Water Repellent, and other specialties and Heavy Chemicals

*Reg. U. S. Pat. Off. **Trade-Mark

American Cyanamid & Chemical Corporation

(A UNIT OF AMERICAN CYANAMID COMPANY)

30 ROCKEFELLER PLAZA • NEW YORK 20, N. Y.



. . . don't let moisture soak up your profits

Unnecessary motor maintenance expense and reduced production efficiency *soak up profits.*

One easily avoidable loss—motor failures caused by excessive moisture—is being minimized by using Fiberglas* High-Safety-Factor Electrical Insulation. Properly impregnated, Fiberglas resists the effects of moisture and also provides "extra protection" against the other principal causes of motor failure, such as overloads, heat, oil and corrosive vapors.

For example, a midwestern concern uses a ¼ hp., 440-volt, 3-phase, 1750 rpm motor to drive agitator paddles in an annealing tank. Moisture and high heat caused failure of the organic insulation and burnouts occurred approximately every six months. The motor was rewound with Fiberglas Electrical Insulation and has been in operation for over three years, on a 24-hour, 7-day a week schedule.

Put profits back—where they belong. Investigate the *use economies* of Fiberglas Electrical Insulation in *your* motors.

For additional information, consult your Fiberglas Distributor. Descriptive catalog data may be obtained by writing Owens-Corning Fiberglas Corporation, 1864 Nicholas Bldg., Toledo 1, Ohio

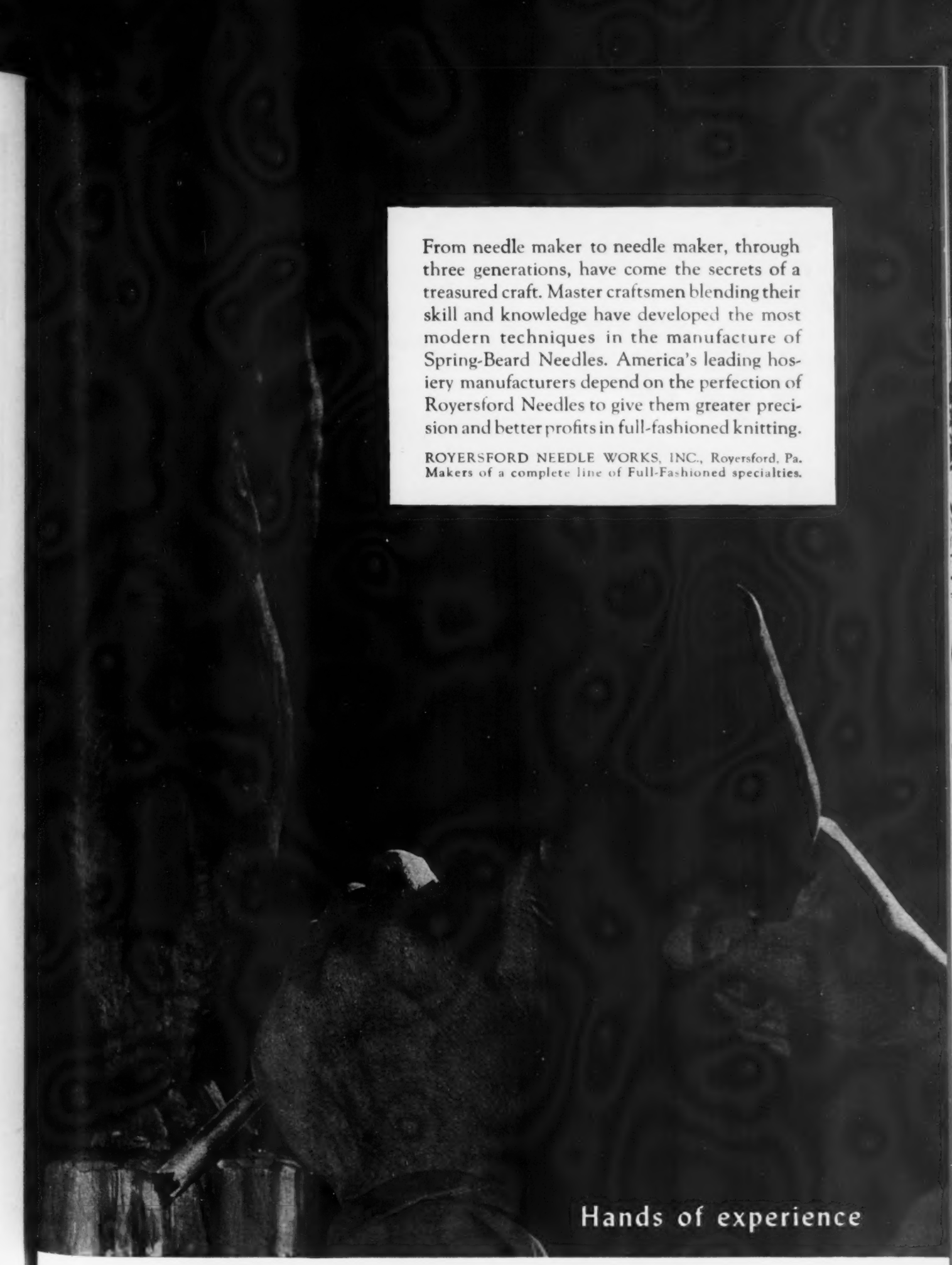
In Canada, Fiberglas, Canada Ltd., Oshawa, Ontario

FIBERGLAS

*T. M. Reg. U. S. Pat. Off.

Electrical Insulation Materials

OTHER FIBERGLAS PRODUCTS: THERMAL INSULATION MATERIALS • DUST-STOP* AIR FILTERS • FIBERGLAS YARNS AND CLOTHS • FIBROUS GLASS MATS



From needle maker to needle maker, through three generations, have come the secrets of a treasured craft. Master craftsmen blending their skill and knowledge have developed the most modern techniques in the manufacture of Spring-Beard Needles. America's leading hosiery manufacturers depend on the perfection of Royersford Needles to give them greater precision and better profits in full-fashioned knitting.

ROYERSFORD NEEDLE WORKS, INC., Royersford, Pa.
Makers of a complete line of Full-Fashioned specialties.

Royersford

—the Master Needle Maker

SEE FAIRBANKS-MORSE FIRST FOR SCALES

WHEN you call in a Fairbanks-Morse scale engineer, you've taken the first step toward getting far more than enduringly reliable weighing instruments.

You've made the right start toward profiting from the often unsuspected services modern scales can render.

Today's line of Fairbanks-Morse Scales is so complete, so diversified, and so adaptable that regular or special models will fit into your procedures as modern production tools.

They can count parts and products, weigh while materials are moving, weigh and disburse preset amounts automatically, read themselves and print weight records, and perform many other plus services.

Fairbanks, Morse & Co., Chicago 5, Illinois.

Fairbanks-Morse

A name worth remembering

Diesel Locomotives • Diesel Engines
Scales • Motors • Pumps • Generators
Magnetos • Stokers • Railroad Motor Cars and Standpipes • Farm Equipment

GENERAL DYESTUFF CORPORATION

NEW YORK

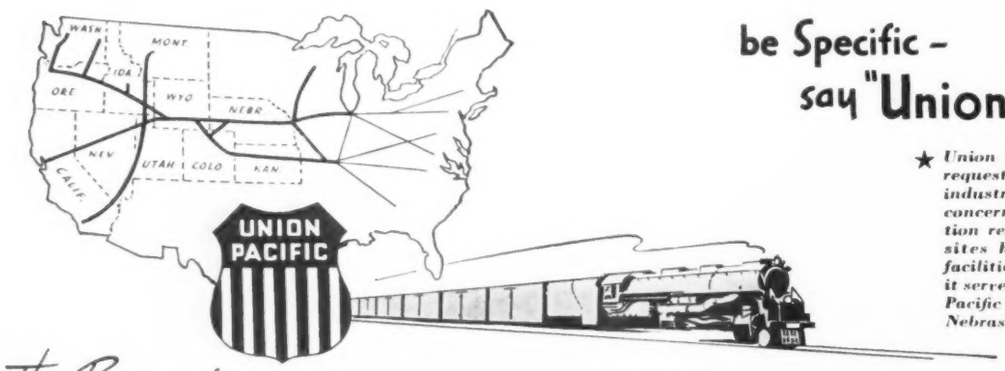
POWERED for Industry

Pictured above is another reason why Union Pacific can maintain fast schedules. It's one of the "Big Boys," 600-ton super-powered freight locomotives designed to meet industry's heaviest demands.

But it takes more than horsepower to keep shipments rolling on schedule. The "know how" of many thousands of trained Union Pacific employees . . . the time-saving Strategic Middle Route uniting the East with the West Coast . . . are *plus* advantages only Union Pacific provides.

Union Pacific traffic experts are located in metropolitan cities from coast to coast. Call on them to assist in solving your transportation problems.

For efficient, dependable freight service—



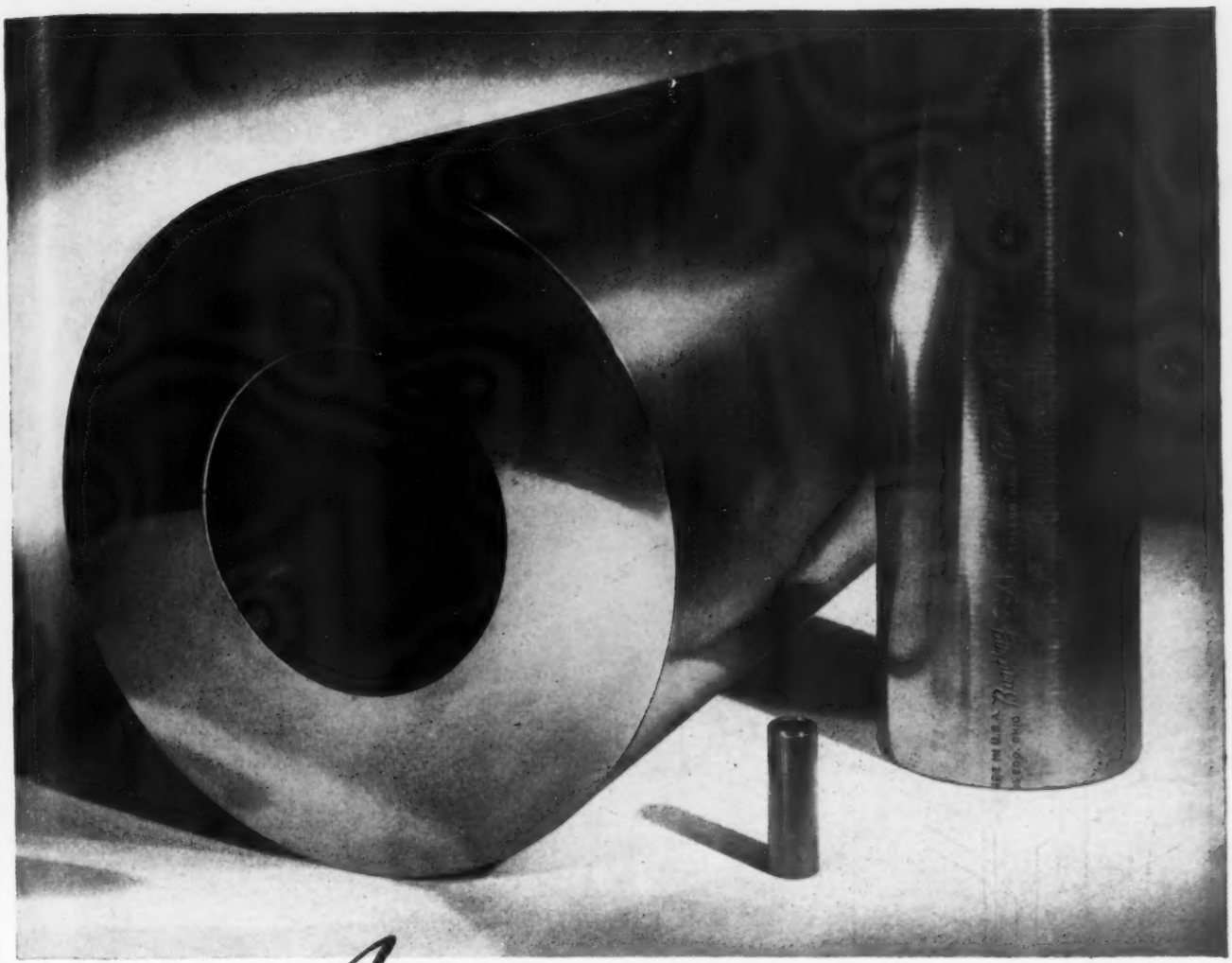
be Specific – say "Union Pacific"

★ *Union Pacific will, upon request, gladly furnish industrial or mercantile concerns with information regarding available sites having trackage facilities in the territory it serves. Address Union Pacific Railroad, Omaha, Nebraska.*

The Progressive

UNION PACIFIC RAILROAD

The Strategic Middle Route



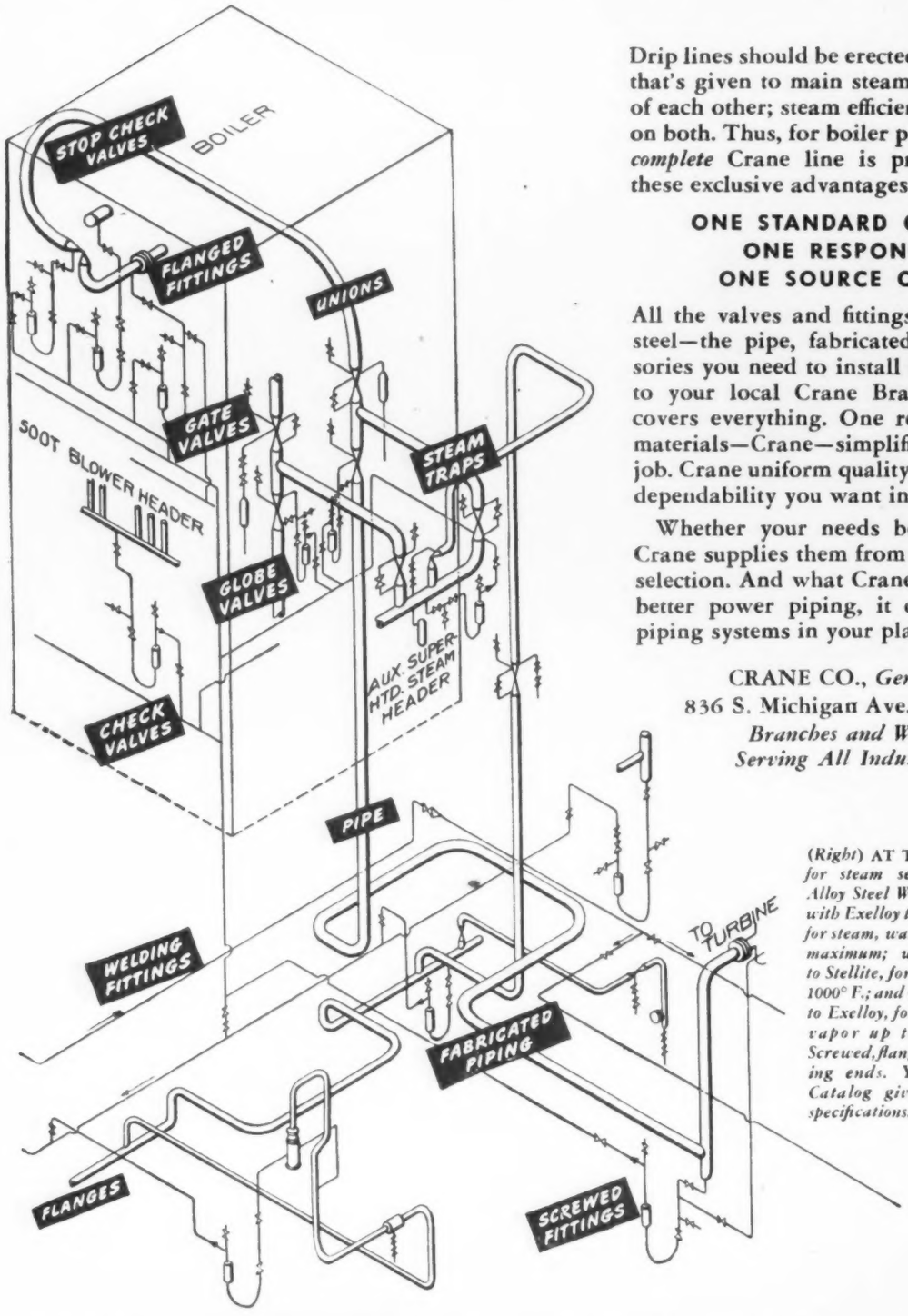
A Bunting Authorized Distributor is carefully selected for his ability to serve you from a well-maintained stock near you. He is backed by Factory Branch stocks and by our main stock at Toledo. Ask him for catalog of Bunting Standard Stock Bearings and Precision Bronze Bars. The Bunting Brass & Bronze Company, Toledo 9, Ohio. Branches in principal cities.

Bunting

37

BRONZE BEARINGS ☆ BUSHINGS ☆ PRECISION BRONZE BARS

All Drip and Drain Piping
...from the Complete Crane Line



Drip lines should be erected with the same care that's given to main steam lines. They're part of each other; steam efficiency depends equally on both. Thus, for boiler piping especially, the *complete* Crane line is preferred because of these exclusive advantages:

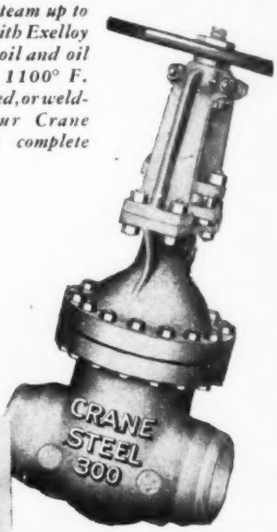
ONE STANDARD OF QUALITY
ONE RESPONSIBILITY
ONE SOURCE OF SUPPLY

All the valves and fittings, in brass, iron, or steel—the pipe, fabricated piping and accessories you need to install a boiler—one order to your local Crane Branch or Wholesaler covers everything. One responsibility for all materials—Crane—simplifies and speeds the job. Crane uniform quality assures the uniform dependability you want in all boiler lines.

Whether your needs be usual or unusual, Crane supplies them from the world's greatest selection. And what Crane can do to give you better power piping, it can also do for all piping systems in your plant.

CRANE CO., *General Offices:*
836 S. Michigan Ave., Chicago 5, Ill.
Branches and Wholesalers
Serving All Industrial Areas

(*Right*) AT THE HEAD OF THE CLASS *for steam services — Crane 300-pound Alloy Steel Wedge Gate Valves. Supplied with Exelloy to No. 49 Nickel Alloy seating for steam, water, gas or air up to 850° F. maximum; with Stellite to Stellite, for steam up to 1000° F.; and with Exelloy to Exelloy, for oil and oil vapor up to 1100° F. Screwed, flanged, or welding ends. Your Crane Catalog gives complete specifications.*



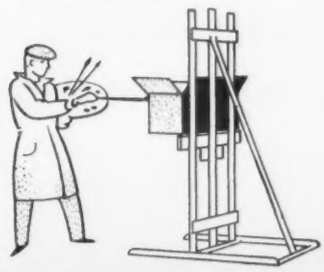
EVERYTHING FROM . . .

VALVES • FITTINGS
PIPE • PLUMBING
HEATING • PUMPS

CRANE

FOR EVERY PIPING SYSTEM

BETTER STEP UP . . . . than Stay Put!



Just ask any manufacturer who has "stepped up" his corrugated boxes into merchandising and display units. He'll tell you that modern color and design attracts attention, simplifies warehousing, promotes product-identity, increases sales.

DESIGNED TO IDENTIFY & ADVERTISE —AS IT PROTECTS.

Combine positive protection with colorful, eye-compelling printing and you have a corrugated shipping box that advertises—a box that will help sell your product wherever it goes. Alert manufacturers know this—realize that their shipping box is seen in transit, in storage, on display. They also know that modern color and design create goodwill—build customer acceptance—their boxes stand out. If you aren't already using shipping boxes that PROTECT, IDENTIFY AND ADVERTISE your product, ask H & D to design such a package for you. For further data, ask for the booklet, "Pack to Attract." Write The Hinde & Dauch Paper Co., Executive Offices, 4609 Decatur Street, Sandusky, Ohio.

REG. U. S. PAT. OFF.

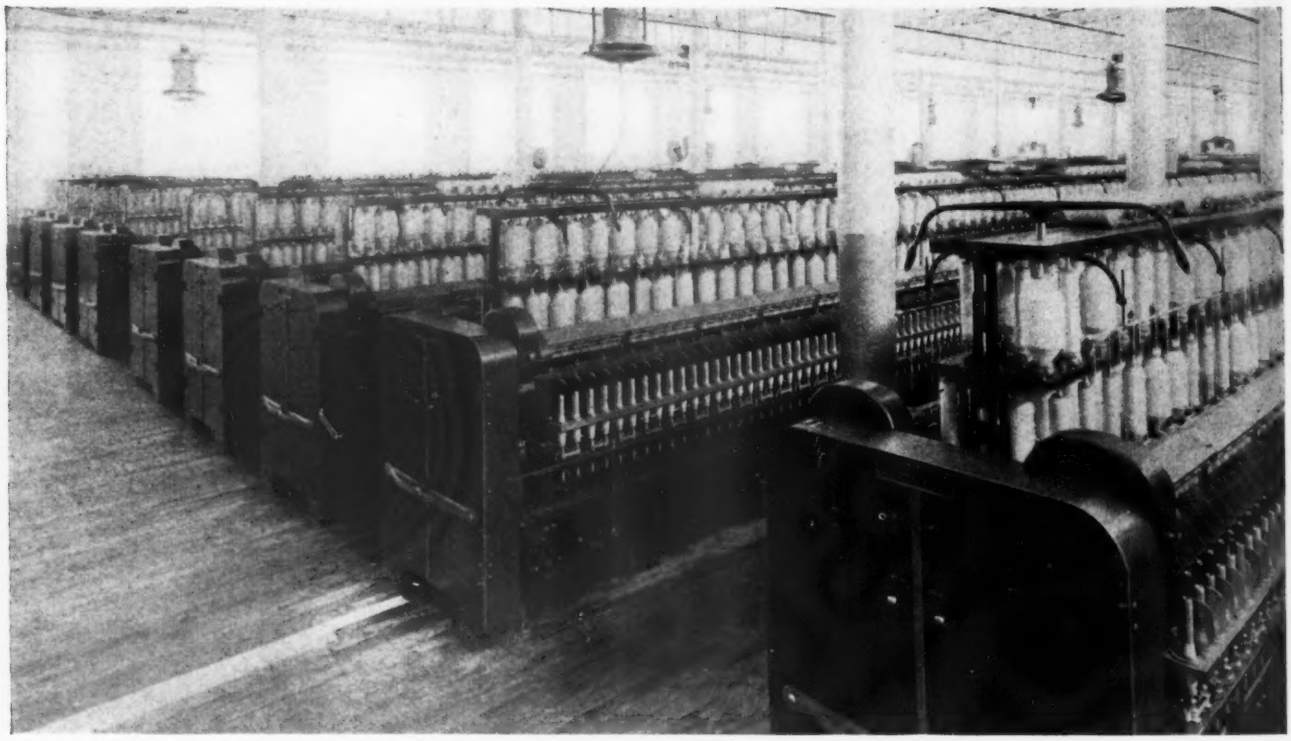
H&D HINDE & DAUCH

AN INFLUENCE IN MODERN SALES

FACTORIES IN: Baltimore • Boston • Buffalo • Chicago • Cleveland • Detroit • Gloucester, N. J. Hoboken • Kansas City • Lenoir, N. C. • Montreal • Richmond • St. Louis • Sandusky, Ohio • Toronto

KEEP DOWN { YARN SPOILAGE THREAD BREAKAGE with

SINCLAIR NO-DRIP LUBRICANTS



IS YOUR PROBLEM uneven draft on spinning operations with attendant low and irregular yarn breaking strength? Improper saddle and roll neck lubrication may be the cause.

Correct saddle and roll neck lubrication calls for a lubricant that flows evenly through the saddle bore and minimizes roll neck friction. At the same time, it must not creep onto roll cots or drip on bottom roll. Sinclair NO-DRIP LUBRICANTS have the correct combination of properties to provide this desired performance.

NO-DRIPS—in five different grades—possess built-in properties to resist creeping. They make for *clean, smooth* top roll lubrication.

Keep down irregular drafting and costly spoilage with Sinclair NO-DRIP LUBRICANTS.

SINCLAIR TEXTILE LUBRICANTS

FOR FULL INFORMATION OR LUBRICATION COUNSEL WRITE SINCLAIR REFINING COMPANY, 630 FIFTH AVENUE, NEW YORK 20, N. Y.

Check list
for Peacetime Operation

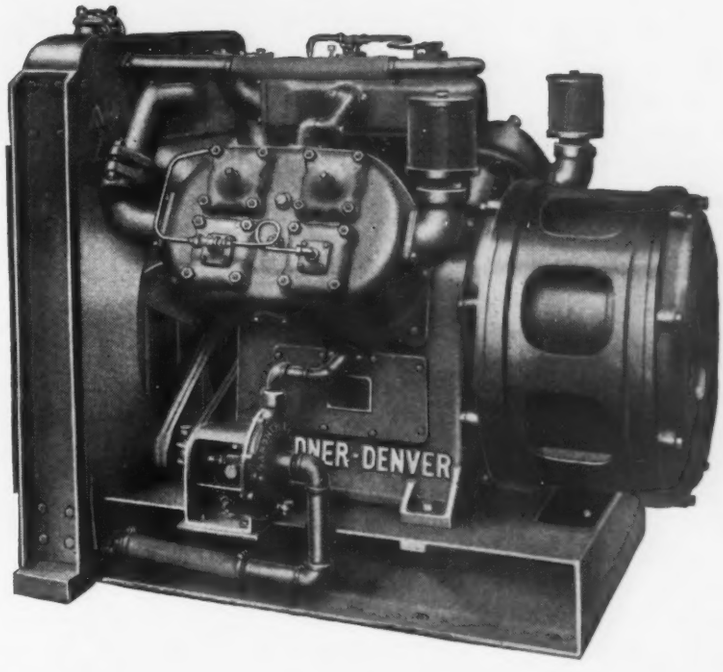
Equipment has suffered during the war. Your compressor, for example, may have had to run extra long hours without adequate attention and may need to be replaced to assure dependability and low operating costs.

The Gardner-Denver "WB" Vertical Water-cooled Compressor provides a dependable, low-cost source of air power. Its rugged construction and advanced design have established long records of economical service. Cylinders and compression heads are completely water-jacketed to assure continuous operation. Compact, the "WB" takes but little space and requires no outside piping—installation is simple.

Check your compressor—it may need replacement. Replace with Gardner-Denver and be assured of dependable, low-cost service. For complete information, write the Gardner-Denver Company, Quincy, Illinois; Atlanta, Ga.; Birmingham, Ala.; Boston, Mass.; Hazleton, Pa.; Knoxville, Tenn.; Washington, D. C.; New York, N. Y.; Philadelphia, Pa.; Pittsburgh, Pa.

GARDNER-DENVER

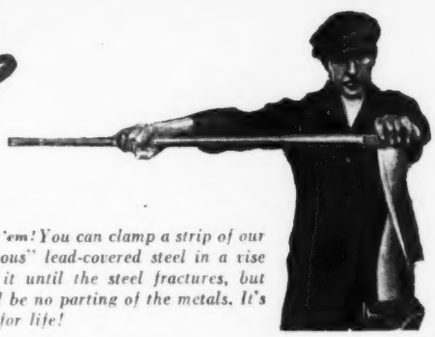
Since 1859



Gardner-Denver Two-Stage Vertical Water-cooled Compressor. Capacity 142 to 445 cubic feet per minute.

You can't beat this drum. *A "Homogeneous" lead-lined treater drum, designed to resist corrosion and heat-creep. Its lead lining will not separate — even under extreme vacuum.*

Bonded for Life



Try and part 'em! *You can clamp a strip of our "Homogeneous" lead-covered steel in a vise and twist it until the steel fractures, but there will be no parting of the metals. It's bonded for life!*

No Wonder "HOMOGENEOUS" Lead-lined Equipment stands up under Extreme Operating Conditions

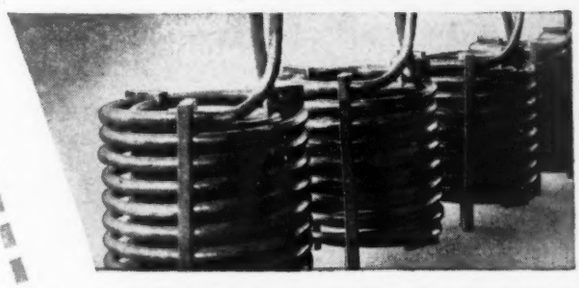
The handling of acids and other corrosive liquids is frequently very tough on equipment.

This is particularly true when the problem is aggravated by conditions involving vibration, vacuum, high pressure, repeated thermal changes and shock impact.

To meet such conditions — as well as those where heat transfer is important — National Lead offers a complete range of "Homogeneous" Lead-lined or Lead-covered Equipment.

Its outstanding feature is the tenacious adhesion of the lead to the steel, copper or brass of which the apparatus is constructed. By our special "Homogeneous" method, the lead lining or covering is inseparably bonded — giving positive assurance that it will not creep, buckle or in any way separate. And, because no tin or tin-lead solder is used in the bonding, the equipment can be used safely at temperatures closely approaching the melting point of the lead itself.

Thus, under shock, vibration, vacuum and temperature change, this rugged "Homogeneous" equipment goes on doing its job — cutting down costly replacements, and even more expensive shut-downs — proving itself, time and time again, a sound, profitable investment.



Some like 'em hot, some like 'em cold. *The four coils illustrated are lead-covered copper for use in a pigment manufacturing plant. National Lead "Homogeneous" heating and cooling coils are in wide use throughout industry.*

Specify "Homogeneous" for:

Acid car and trailer tanks, acid columns, agitators, autoclaves, digestors, heat exchangers, vacuum tanks, lead-covered heating and cooling coils and other similar uses.

Made to Specification — Because no two acid handling projects present exactly similar requirements, all National Lead "Homogeneous" equipment is fabricated to specification . . . specially designed and constructed to meet given conditions.

* * *

And remember, whether you need lead pipe, fittings, valves . . . *anything in lead* up to a complete acid recovery plant . . . National Lead can supply you. And give you the benefit of years of experience in thousands of acid processing applications.

If Acid Handling is your Problem . . .

Go "National" for Lead

NATIONAL LEAD COMPANY
111 Broadway, New York 6, N. Y.
Offices and Plants in Principal Cities and Canada

makes extremely luxurious textiles supremely practical

***Velon* creates new and bigger sales** for textiles that must be both beautiful and lasting. For *Velon* banishes the word "impractical" from the fabric vocabulary.

Smarter colors, lighter, brighter, richer, newer textures and patterns—*stay* fresh and beautiful when woven into fabric of *Velon*. Whether for seat upholstery, draperies, wall-trim, lampshades, shoes, bags, belts, hats, screens or awnings, *Velon* opens new markets for you—widens the scope and volume of existing markets.

***Velon* defies dirt.** Grease and grime can't cling to its non-porous threads. Even alkalis and acids won't stain it. And *Velon* is restored to original beauty by quick wiping with a damp cloth.

***Velon* defies wear.** This man-made filament is homogeneous so it resists abrasion, doesn't snag. And the fabric will never stretch or shrink out of shape.

***Velon* is color fast.** Because the color is inherent in the construction of the monofilament, it cannot change, wash out or fade.

***Velon* is in production.** Firestone engineers and technicians are available to you for consultation and advice. Write Firestone, Akron, for samples of *Velon* yarn, and full information.

BEST TODAY··· STILL BETTER TOMORROW

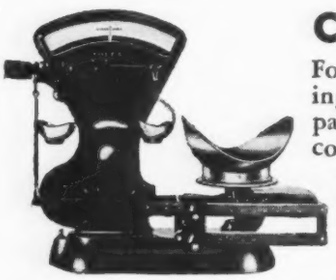
Listen to the Voice of Firestone Monday Evenings Over NBC

*TRADE MARK

Headquarters FOR SCALES

PRINTED WEIGHTS

Toledo Printweigh Scales produce printed weight records in big figures at split-second speed. They eliminate human errors in recording the vitally important weights that so directly affect factory costs and profit. For use with tickets, sheets, or strips. Built in all capacities in which dial scales are regularly supplied. Write for Bulletin No. 032.



COUNTING

For quickly and accurately issuing predetermined quantities of parts or pieces from stock; or counting unknown quantities, as in receiving or inventory. Eliminates slow, tedious hand counts. Wide choice of models . . . for extremely small parts, or for parts totalling several tons in weight. Write for Bulletin No. 204.

BALANCING, TESTING, AND FORCE-MEASURING DEVICES

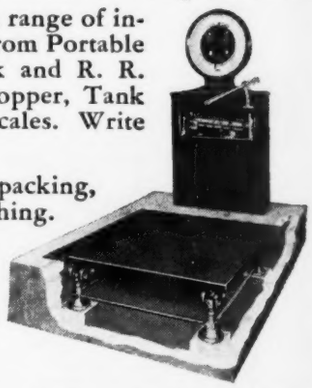
For balancing connecting rods, propellers . . . for testing springs of all kinds, and piston rings . . . for continuous check of weight of coated materials in production. Write for further information.

NATION-WIDE SERVICE

There are 181 Toledo Offices conveniently located throughout United States and Canada. Service mechanics at these offices are factory-trained in the maintenance of all types of scales. Toledo Scale Company, Toledo 12, O.

WEIGHING...*in all capacities*

Dial Scales For the full range of industrial requirements from Portable Scales to Motor Truck and R. R. Track Scales. Also Hopper, Tank and Overhead Track Scales. Write for Bulletin No. 020.

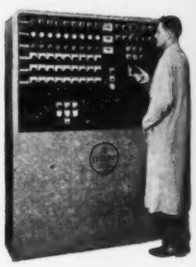


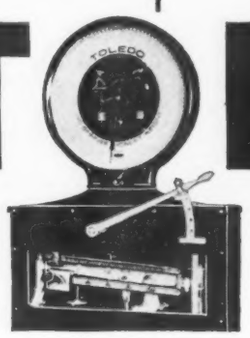
Over-Under Scales For packing, filling, and check weighing. "Speedweigh" for capacities to 5 lb., also bench and portable types for heavier requirements. Write for Bulletin No. 415.

Fan Scales Capacities to 40 lbs. Choice of commodity equipment. Also with metric charts; and for Mail and Parcel Post. Write for Bulletin No. 046.

SPECIAL-PURPOSE SCALES

Toledos equipped with electric cut-off, can be interlocked through control panels for completely automatic batching. Automatic conveyor scales to totalize weights. Airplane weighers; dynamometer scales, etc. Toledo Scale Engineering is available for consultation on special weighing and control problems.





TOLEDO SCALES

"New Note for Spring" . . . The making of a sheer, flawlessly-knit fabric adds a new note of charm to the melody of Spring. Full-fashioned stocking fabrics made with TMW Needles are your assurance of higher quality and greater profits. Keep your Knitting Machines young and effective with TMW Needles . . . *And remember: Regular Reneedling Pays! Let us put your needle bars in shape for faster, more accurate, more profitable knitting.*

TEXTILE MACHINE WORKS • READING, PA.

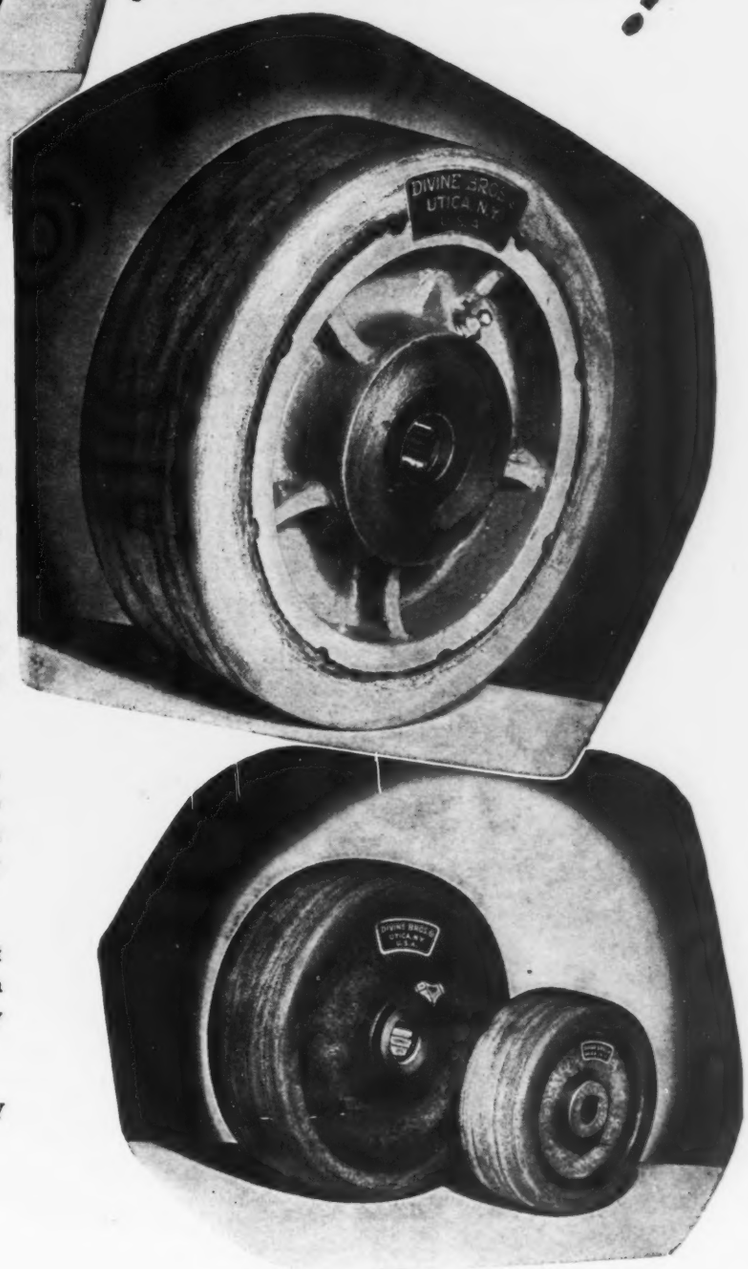
"When we cannot act as we wish, we must act as we can."

TERRENCE

Until production schedules will permit prompt delivery of the new high-precision READING Full-Fashioned Knitting Machine, our Engineers will do their utmost to help you keep your present equipment at highest efficiency. Let us tell you about our complete reconditioning service and what it means in terms of better fabrics and higher profits.

TEXTILE MACHINE WORKS • READING, PA.

TOUGH, EASY ROLLING FORMICA TRUCK WHEELS!



FORMICA wheels for hand lift trucks and other factory trucks have provided some new qualities that have greatly increased life and efficiency.

The resilient tread material operates quietly and prevents floor damage. It does not flatten out under extreme load, nor develop flats if left under load for an extended period. This wheel requires a minimum of effort to start, or to sustain motion under load.

Formica tires are chemically inactive and unaffected by petroleum, chemicals, water and most industrial acids. They can be used in temperatures as high as 250° F.

The tire is spark-proof and non-conductive, insulating the truck electrically from the floor. Formica tires may also be made with embedded conductors to prevent building up a static potential.

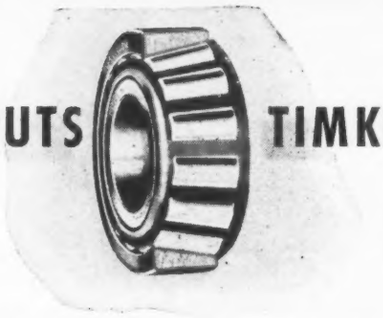
Formica tires are light—one-sixth the weight of steel. They have a remarkable record in service, and their use in industry generally is expanding very rapidly.

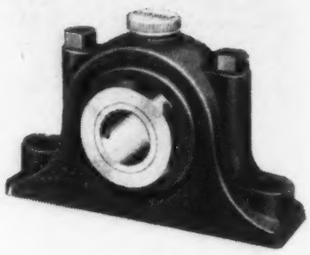
Distributed only by Divine Brothers Company
Utica, New York, U. S. A.

FORMICA

THE FORMICA INSULATION COMPANY, 4668 SPRING GROVE AVE., CINCINNATI 32, O.

DODGE PUTS TIMKEN BEARING PRECISION INTO WORKING CLOTHES





Delivered fully assembled, adjusted, lubricated, the Dodge-Timken Double Interlock Pillow Block is ready to lock on the shaft, run at full speed and full load. Dodge mounts, seals and houses the bearing assembly, with its double row of precision-finished rollers—makes it available for immediate service, with no assembling required on the job.

From our foundry, through many precision operations, on the latest machine tool equipment, the parts required for mounting this bearing are manufactured complete in the Dodge factory. This is one of the famous Dodge 30,000 hour line, covering a wide range of industrial bearing requirements, and promptly available from distributors' stocks.

Look for the Dodge distributor in your classified telephone directory under "Power Transmission Equipment."

DODGE MANUFACTURING CORPORATION, MISHAWAKA, INDIANA

Dodge-Timken Double-Interlock Bearing

LUBRICATION COVER CAP KEEPS DIRT OUT
STURDY, SELF-ALIGNING OUTER HOUSING
INNER HOUSING SELF-ALIGNS WITH SHAFT
NON-RUBBING INDESTRUCTIBLE LABYRINTH SEALS
SNAP RING AND SHIMS MAINTAIN CORRECT BEARING ADJUSTMENT
SET SCREWS LOCK BOTH ENDS OF RACE TO SHAFT
BEARING DELIVERED COMPLETELY ASSEMBLED, ADJUSTED, LUBRICATED—READY TO SLIP ON SHAFT AND GO TO WORK.

THE SYMBOL THAT CAME TO LIFE

257 factory graduate Transmissioneers wear this sign of a nation-wide personal service that provides the latest answers to power transmission problems.

DODGE
MISHAWAKA

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NAME PLATES

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(left) The Superintendent checks warper stop reports with another mill executive. (right) The Overseer of Spinning and Carding consults with a Gulf Lubrication Service Engineer on winder lubrication.

"WITH GULF QUALITY LUBRICANTS we've kept maintenance expense low in every room for over 20 years," says this Superintendent. "In addition, proper lubrication helps us get more yardage, fewer oily cuts, fewer warper stops, and lower power costs."

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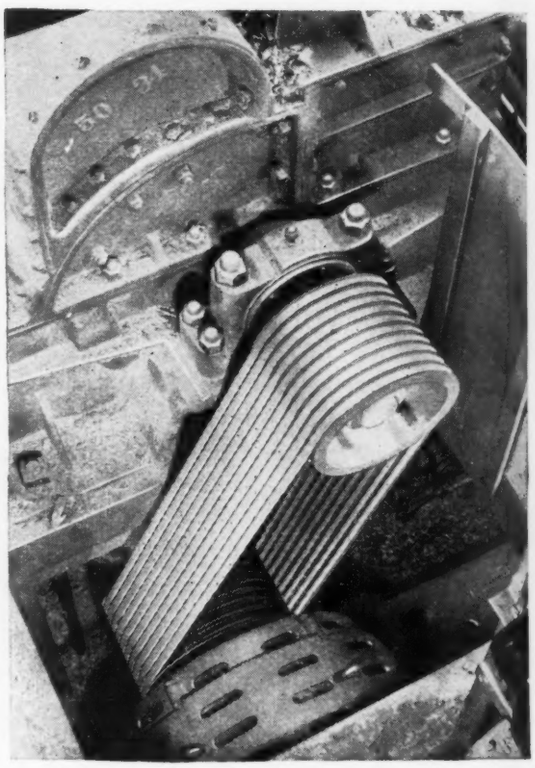

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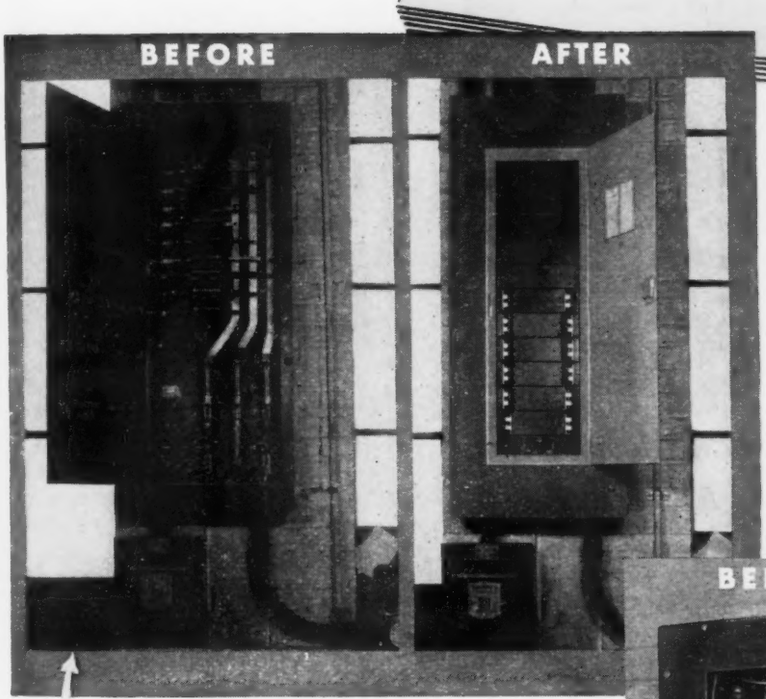

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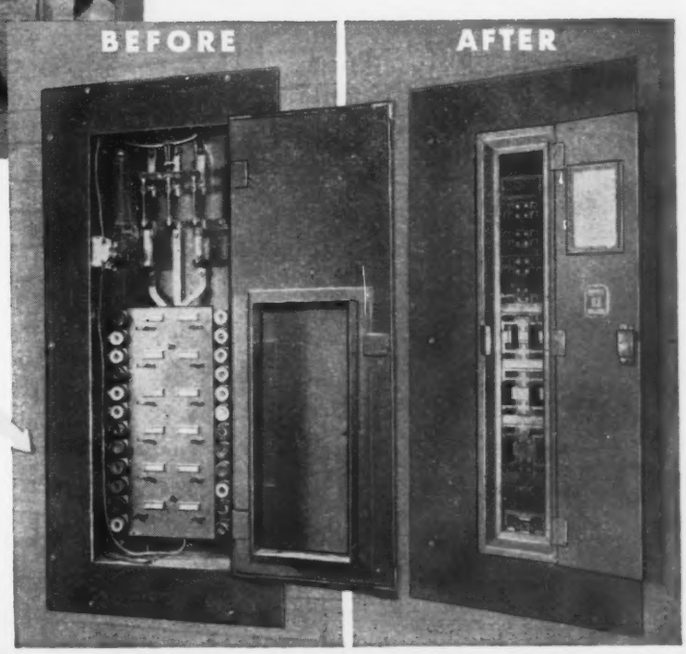

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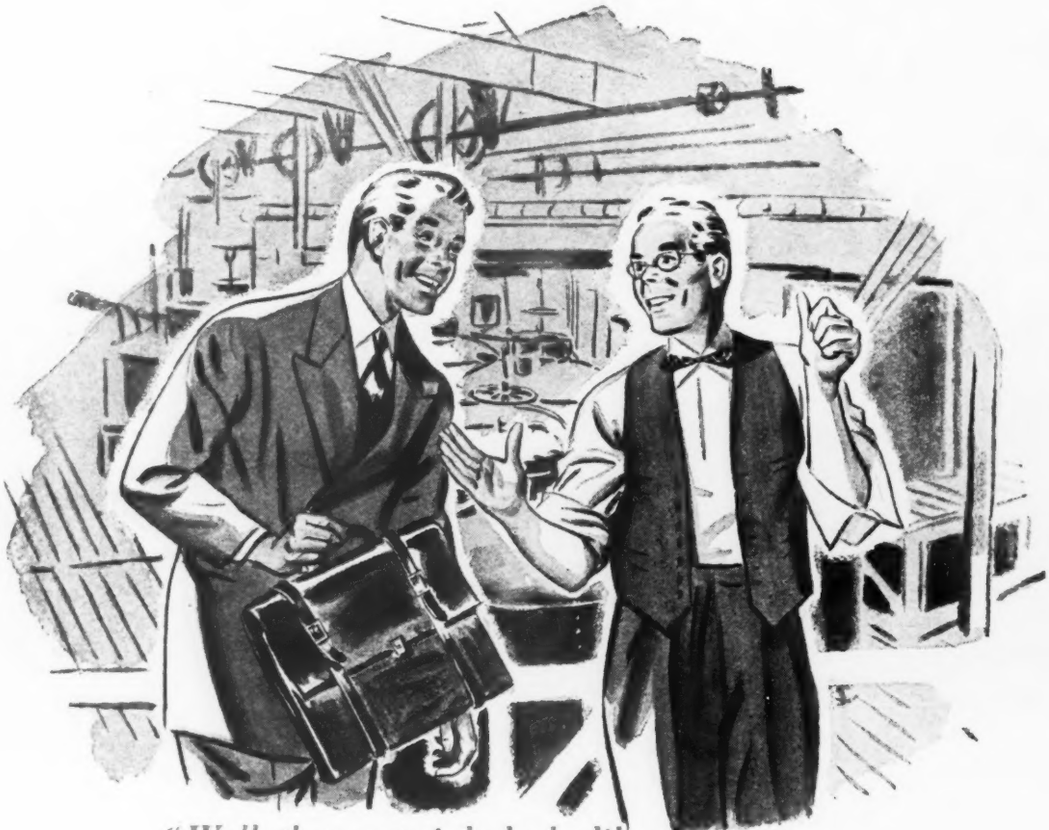

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TRITON 770 is *more* than an efficient surface active material. It suspends impurities in the caustic so they are not redeposited on the fabric . . . and, being very free rinsing, speeds up the draining of the kiers.

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LOAN TO BRITAIN

. . . *Investment in World Economic Unity*

CONGRESS should give swift and confident approval to the proposed loan to Great Britain.

Few other issues of foreign policy in the present troubled world lend themselves to such clear appraisal of where our National interest lies.

In simplest terms, the question is whether we should extend to Great Britain a credit of $3¾ billions (plus $650 millions in payment for lend-lease balances) in return for her promise to repay principal with interest over a fifty year period starting at the end of 1951, and her pledge to give the fullest possible support to the kind of world trading system which it is the declared policy of both the United States and the United Nations Organization to promote.

We Can Afford to Make It

The sum we hazard is not inconsiderable, but financial risks have meaning only when related to resources. The line of credit provided by the loan will amount, at most, to a claim on 2/5 of 1 per cent of our gross output for the five to six year period over which it may be used. The interest rate charged, while moderate, is higher than our Treasury is paying upon current borrowings. The risk entailed is well within our resources as a creditor. In the considered judgment of the American and British technical experts who thrashed through the intricate accounting for three painful months, the amount and terms offered will suffice to allow Britain, under rigid austerity, to relax her system of foreign trade restrictions, and to expand exports sufficiently to pay her debt commitments.

Against the considered risks of extending the loan, there must be weighed the certain costs of refusing it. Without the loan, Britain has no recourse but to maintain and extend the system of bloc trading which she adopted under stress of world depression and world war. If that is the route Britain follows, she will carry with her a large part of the sterling area countries — all British Commonwealth and Empire countries (except Newfoundland and Canada) plus Egypt, Iraq, and Iceland—and many of the nations with which the United Kingdom has payment agreements (Argentina, Bolivia, Brazil, Chile, Paraguay, Peru, Uruguay, Belgium, Czechoslovakia, Denmark, Finland, France, Netherlands, Norway, Portugal, Spain, Sweden, and Turkey).

Altogether, the United Kingdom's orbit accounts for more than half of the world's imports and exports combined. It likewise is crucial to the trade of the United States. In the years immediately preceding the war, the sterling area and payment-agreement countries provided just under one-half of both the import and export trade of this country.

Russia, of course, will continue to conduct her foreign commerce exclusively upon a state-trading basis. Before the war, the Soviet Union transacted only a little more than 1 per cent of foreign trade business, but its future sphere of influence will be large—conceivably embracing as much as 30 per cent of total international trade.

We Cannot Afford to Refuse It

If the weight of British influence in foreign trade is thrown toward the Russian pattern rather than toward ours, it is apparent that bloc trading, with all of is supporting devices—bilateral deals, exchange controls, import and export quotas, subsidies, currency manipulations and the like —will be the prevailing pattern for foreign transactions.

In self-protection, the United States would have no alternative but to conform to the dominant pattern. We should be forced to form our own bloc, and to enter into active economic warfare in bidding for trade concessions against the offers of our rivals. How well we would do this is problematical. To the game we would bring the largest economic potential in the world. But our handicaps would be equally impressive.

First, under a system in which political and economic motivations are inextricably fused, a democratic nation, and particularly one with a tradition of freedom in its domestic enterprise, would operate at a great disadvantage. We should inevitably be driven toward more and more government control of our entire economy.

Second, with a pattern of foreign trade in which our exports habitually are greater than our imports, our bargaining position in international trade is much weaker than our over-all economic strength would suggest. Under state-controlled trading we should still find it difficult to compete successfully without resort to loans, and under these conditions our loans would be supporting a system alien to our choice and interest.

Third, under a regimented system which made economic decisions subservient to political considerations, it is virtually certain that the volume of world trade would shrink. That was the clear experience of the nineteen-thirties. Thus, the

standard of living in the United States would suffer in common with all others, and we would be forced into a particularly drastic curtailment of certain war-expanded segments of our economy, at the very time when a large portion of the world is most in need of the products they can produce.

Weighing the Alternative Costs

In the years immediately ahead it is certain that from two-thirds to three-quarters of all international trade will be transacted either in pounds or dollars. If both circuits are linked in a determined effort to restore competitive world markets, to which buyers and sellers alike have access without discrimination, that will be the dominant system of foreign trade. If the sterling group with its satellites organizes a closed grid, our exclusive effort cannot preserve the trade pattern that we believe offers most to us and to the world.

No one can accurately measure the costs to the United States of refusing the loan and accepting the consequences. But unquestionably they would dwarf to insignificance the sum risked in the proposed credit. We would lose through the shrinkage of our trade, through the wrench of violent readjustments in our production patterns, and eventually through the curtailment of our over-all output below what it would be under an open rather than a closed system. We would lose heavily in economic liberty under a procedure that can be followed with success only by a close regimentation of production as well as trade.

Most of all, we would lose in prestige, through demonstrating that we are still unprepared to exercise a world leadership to which our giant stature as the possessor of almost half of the world's economic capacity entitles us. Once again we would be exhibiting to the world political feet of clay supporting an economic frame of heroic proportions.

It Is Far from a "Soft" Bargain

There has been some disposition in this country to regard the loan to Britain as a somewhat "soft" and generally unprecedented transaction that smacks of charity. This is the sheerest nonsense.

In the first place, the kind of economic system we want has never functioned and cannot operate now without a lender. For many decades prior to World War I Great Britain filled the creditor role. In 1913 her foreign investments totaled $19 billions, and she not only made such transactions pay, but they proved her salvation through two grim wars. Her credits helped in the industrial development of a large segment of the world, including the United States. Of all the nations in the world, only the United States can assume now the mantle which Britain no longer can support.

In the second place, the terms of our proposed loan to the United Kingdom are far from easy. Britain put a substantially greater proportion of her relatively meager resources into the war than we did, and dissipated a large share of her foreign holdings in the process while accumulating an outside debt of crushing magnitude. On a per capita basis her internal debt is greater than ours. Many Britons feel that our proposed loan is too small, and its terms too rigorous. If the amount proves to be inadequate, we shall have to consider supplemental aid at a later date. But the majority believe that the present offer gives a fighting chance to restore the system of world trade that we and they both want, and upon which the World Bank, the Monetary Fund, and the International Trade Organization under United Nations aegis are based. It is certain that without our loan all of this will go by the board.

In the third place, our proposed loan is far from being without precedent. Canada, which is linked by far closer economic ties to us than to the Empire, already has provided for a loan to Britain of $1,200,000,000. This amounts to almost a third of what we propose to lend, although Canada's population is less than 10 per cent, and her income is little more than 5 per cent of ours.

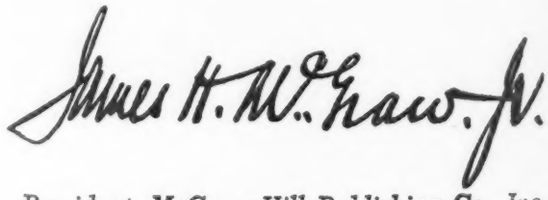
Shall the United States Lead or Follow?

The way to exercise leadership is to lead. Nothing could be more futile than to go half way toward establishing the economic order for which we stand, and then withhold the crucial measure that will make it work. Failure to approve the loan to Britain will be a clear default of leadership. Failure to approve it promptly will dissipate its effectiveness.

It has been officially stated that the British loan is a unique case that will establish no precedents for further credits to other nations. It is exceptional in its importance to our aim. But if the United States expects to make its economic program the dominant one for world trade, it must continue to exercise the creditor function without which that program cannot persist.

The most that we should ask is that future loan transactions be scrutinized as was this one to see that they offer comparable security and comparable return in support of the program for which we stand.

For the loan to Britain, it can be said that never before has one nation had an opportunity to gain so much at so little risk as has the United States in this uniquely decisive case.



President, McGraw-Hill Publishing Co., Inc.

TEXTILE WORLD

April, 1946 - Vol. 95, No. 4

Old China Sends Us YOUNG TEXTILE STUDENTS

HIGHLIGHTS: *American manufacturing and managerial methods are being observed and studied by Chinese students—All phases of textile work investigated—Potential market in China to be developed.*

By EARLE MAULDIN, *Southern Editor, TEXTILE WORLD*

"I WANT TO PLACE two students at Avondale Mills."

"What's in it for us?"

"Nothing, and it may cost you plenty. But they're fine boys from China."

"O K, send 'em on!"

Some such exchange as this took place several months ago between Malcolm Campbell, dean of the School of Textiles, North Carolina State College, Raleigh, N. C., and Hugh M. Comer, president of Avondale Mills, Sylacauga, Ala. And since October, 1945, Mr. Comer has been the gracious host to two somewhat confused, but highly appreciative young Chinese gentlemen.

They are Su Chian Chi and Wan Yu Chi, both graduates of Nantung Textile College; and each of them has had some years experience in the Chinese operated mills. Having studied English in their native college they are quite proficient in reading and writing our language. Pronunciation, however, causes some confusion.

Mr. Su's father is head of an organization which operates several spinning and weaving mills: Dah-Hwa Spinning & Weaving Co. at Sien and Kwan Yan; Yu Hwah Spinning & Weaving Co. at Chungking and Chengtu; Tah-Hsing Spinning & Weaving Co. at Sih Kai-Chang.

Several of the plants were bombed by the Japanese during the war, and one of them, the plant at Sih Kai-Chang was captured by the enemy and later regained by Chinese forces. Both young men normally make their home with their families in Chungking. Mr. Wan is employed as an engineer in the chain of mills. Following the Chinese custom, they live with their parents and other relatives; and when asked how many were in his family Mr. Su smiled and said, "Thirty-eight." Both men are keen, intelligent, serious, industrious, and have little time for merely social activities. They have, however, been invited out to dinner in some of the local homes; they have been invited and introduced at the luncheon clubs; taken to church, to football games, and in other ways entertained; but the impression they give is that there is much to learn and little time left.

OTHERS HERE. One thousand of these Chinese students, or "technicians" as they call themselves, have been brought by the American and Chinese Governments to study modern American industry. While in this country they are

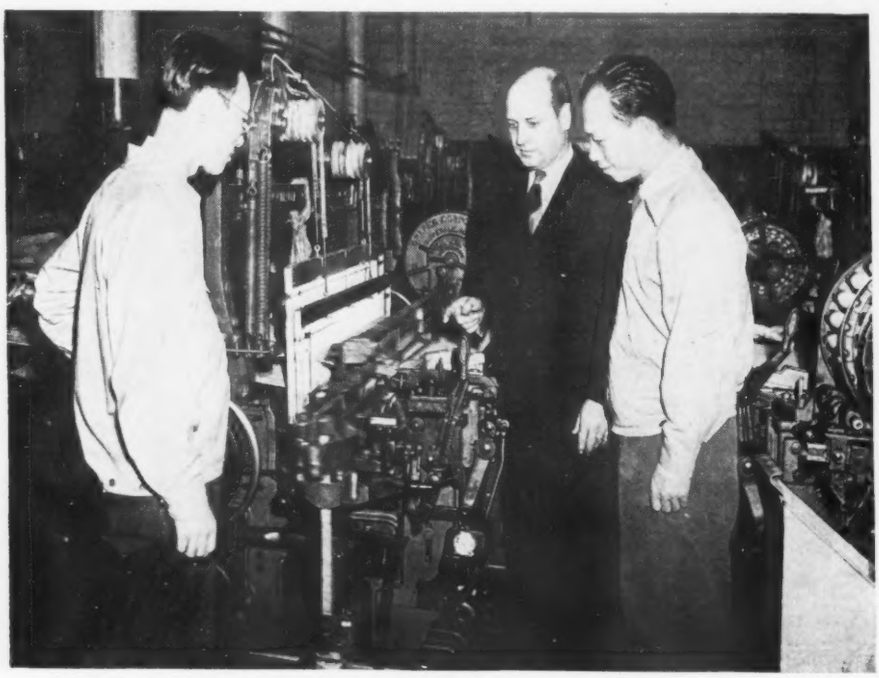
under the supervision of the International Training Administration, Washington, D. C., a semi-public, government-sponsored organization. They have been placed in numerous industries, steel, paper, here and there in various fields of manufacture. Ten or them are interested in textiles; and Su and Wan are fortunate in that they are privileged to work, study, observe, and above all, to ask questions, in one of the outstanding mills of the South, known not only for its technical progress but for its modern and original ideas on labor relations and mill management.

No questions are barred—no information is withheld. These men are given the freedom of the plant and full information on all subjects, from the sources and cost of bales of cotton in the warehouse to the confidential cost-accounting records in the office safe. They attend meetings of the foremen, the superintendents, the stockholders.

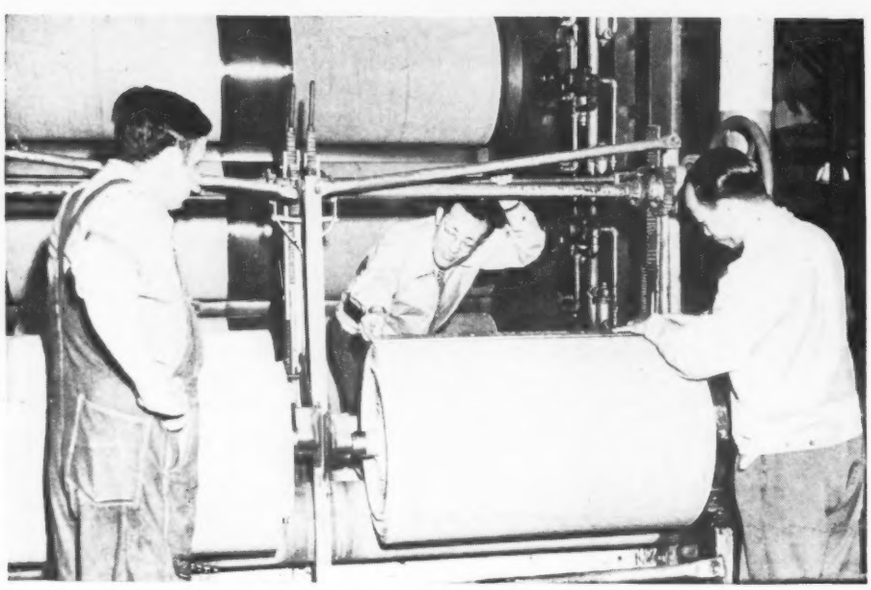
KEEP RECORDS. Note books are filled, one after another, neatly written and aptly illustrated. Much of the data is recorded in English, some in Chinese. "There are no adequate Chinese characters for some American ideas," said Mr. Su when questioned as to why they used English in preference to Chinese. Some notebooks have been mailed home, others will follow from time to time. Day after day, information is being gathered, data on yarn, on cloth, on dyeing, on finishing, information on management, on payrolls, on purchasing, on supplies; and of greatest importance, information on costs. Forms are being filled in with full explanations as to their use and the possibilities of adaptation to Chinese requirements.

The students are interested in every device, accessory, and tool used in the mill. Lighting, painting, humidity, watchman's clocks, heating and cooling, short cuts used by various superintendents, all cause questions and investigation and little goes on that escapes their keen observation. These men are on the job from 8 a.m. to 4 p.m. and frequently they go on into the night shift.

Their objective is to contribute to the development of the industry of China and to have their part in raising the standard of living of the more than 400,000,000 Chinese people. If this latter achievement can be gained, they confidently expect to create a market which will absorb the production of all textile plants for many years. China will import American goods and American cotton, according to Su, in increasing quantities. Eventually, the Chinese will manufacture all types of goods but for some time to come their chief interest will be in the coarser fabrics.



Wan and Su ask questions of Homer Roberts, superintendent at Eva Jane mill.



Dewey Rayfield watches Wan and Su at finishing machine.

GO TO ENGLAND. From Sylacauga these men will probably visit several textile machinery manufacturing concerns and then return to China by way of England, where they will spend time in further study of the industry. Mr. Su's interest tends toward questions of management, while Mr. Wan's interest is toward the technical problems. The latter is a member of the Technical Association of Textile Engineering in China. The two men were schoolmates at home and together they studied textiles at N. C. State College before coming to Sylacauga.

Their schedule in the mills is roughly as follows:

Two months in Central and Catherine mills for yarn manufacturing experience, including cotton classing.

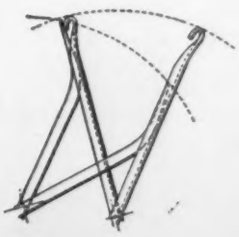
Two months in Eva Jane and Sallie B. mills for experience in weaving, warp preparation, slashing.

Two months in Eva Jane mill for experience in dyeing, finishing, handling of supplies.

Two months in cost department, payroll, labor standards, job loads, auditing.

Knitting Needles

Vary Infinitely in Design



HIGHLIGHTS: *Major problem is closing the hook—Bolt types show great promise—Needle and machine design inseparable—Spring beard leads in simplicity and is cheapest—Latches need no extraneous hook-closing mechanism—Many other needles developed over the years for specific purposes—Some still in use today.*

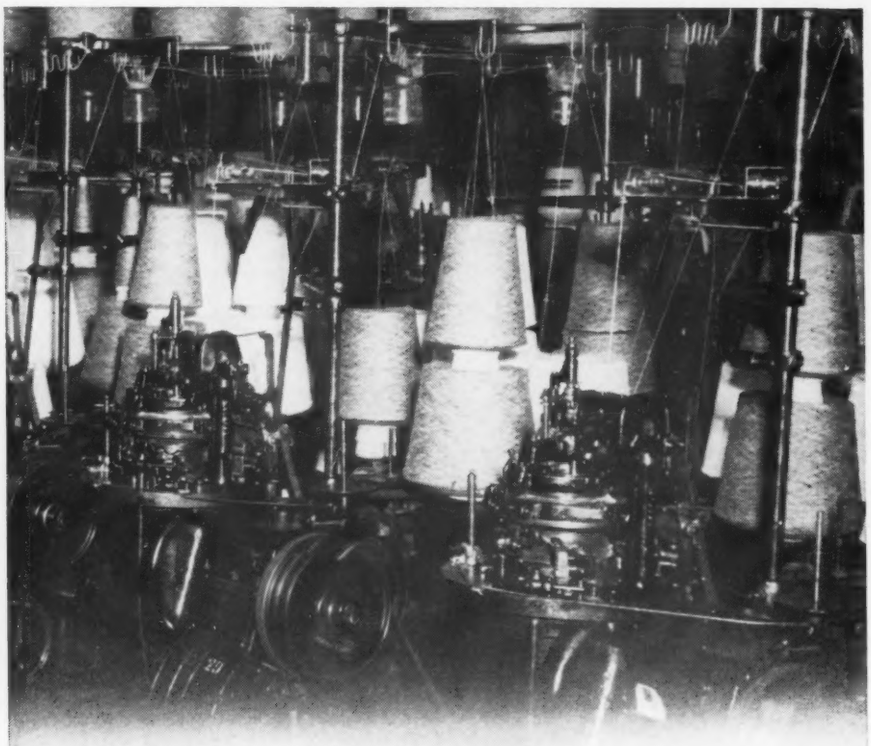
By MAX C. MILLER

Knitting Engineer, Thompson Hill, Cumberland, R. I.

SINCE THE INVENTION of the knitting machine by Rev. William Lee, of Calverton, England, late in the 16th century, needles for drawing yarn into loops have been evolved in various forms; but with very few exceptions, all knitting needles are formed hook-like. The major problem has been to provide means to close the hook momentarily, so that in each knitting cycle the hook can be open to engage with the new yarn and closed thereafter to permit new yarn to be drawn through the previously formed loop in the fabric and to permit the latter loop to be cast off over the closed hook.

While all hooked knitting needles must so function, in a few instances, through the hundreds of years of knitting machine development, machines were evolved that used loop-forming implements which were not hooked; and some of these have proved practical in machines for highly specialized purposes; but because the universally used needles are of the hooked variety, only this type will be shown and described.

The Lee machine used flat or straight-bar *en masse* needles, and the needles used were made of wire formed with a long, springy, flexible hook. Needles of this general type are in common and universal use today, although they have naturally been very much refined in every way. They are known as spring-beard needles; and a modern form, such as that used in flat full-fashioned hosiery machines, is shown in Fig. 1. They are made in many gages. The writer has seen them in use as coarse as 6 gage and as fine as 66 gage. Gage numbers run in multiples of three—6, 9, 12, etc. The more common gages in use today are 39, 42, 45, 48, 51, 54, 57, 60, and 66,



Circular knitting machines use many latch needles; some use the finest gages made.

although as yet there are very few 57-, 60-, and 66-gage machines in use, while 48- and 54-gage machines have never been built in quantities. The tendency in modern industrial countries is to use machines of 42 to 51 gage, inclusive. There are, however, relatively few 51-gage machines in this country; the more common gages are 42 and 45.

GAGE DEFINED. The term "gage" is used in many flat or straight-bar knitting machines (including flat full-fashioned hosiery machines) to indicate the number of needles per English inch (which is the same as the U. S. inch), even though the machine itself may be made to millimeter measurements, as is the custom in continental Europe. If the machine is built in England or the United States, it is entirely made to the inch system, although there are many machines in both of these countries which were imported from continental Europe and which follow the metric system for the entire machine, except the index for the slotting of the element bars which are always made to the inch system. The early makers on the Continent purchased the knitting-element bars in England for a considerable period of time, with the result that when they did make their own bars, the inch system for the bars was too firmly established to be changed. This is naturally a very fortunate situation; because regardless of where a bar is made, it is slotted to the inch system as we know it.

Present spring-beard needles are made with extreme accuracy.

OTHER "GAGES." For flat warp-knitting machine builders, the "gage" is the actual number of needles per inch, so that 28-gage in flat warp machines is the same index as 42-gage in flat full-fashioned hosiery, underwear, or similar machines.

Unfortunately, these—or some other universal system of gage designation—were not adopted by builders of circular machines in which the needles are reciprocated in slots (independently moveable needle machines), with the result that considerable confusion exists as to what each machine manufacturer means when, as an example, it is stated that there are 320 needles in 3¾ in. diameter machine. The latter dimension, while it is a diameter dimension, might be the measurement of the circle of needles either back across the diameter, or it might be the distance across the cylinder between the hook centers; in fact, it might be the outside diameter of the cylinder itself and thus have no definite relationship to the needle hooks or their gage.

FINDING NEEDLES. To determine the number of needles in, let us say, any flat full-fashwioned hosiery knitting machine, one divides the gage number (which is the number of needles in 1½ in.) by 3 and multiplies the quotient by 2, so that a 45-gage bar has 30 needles to each inch of its length. This rather odd system of measurement was developed in the early days when each two needles were cast in a small lead holding base; these leads were assembled by the use of a 3-in. measuring gage, so that, let us say, for a 30-gage machine, which requires 20 needles to an inch, 60 needles were required in 3 in.; and there would have to be 30 leads of two needles each to fill the 3 in. measuring gage.

Needles were cast in leads because, in those early days of industrial development, bars could not be slotted accurately enough; and each needle could not be accurately indexed in its own slot, whereas the making of a simple mold for two needles and setting them together in a lead base was possible with a considerable degree of over-all accuracy. Even today, some flat machines —for example, flat warp-knitting machines and even some circular machines —still use such leaded needles, either for each needle, or for each two or three needles.

Naturally, the correct system in circular machines would be to state the total number of needles, then to state what the diameter of the machine is through

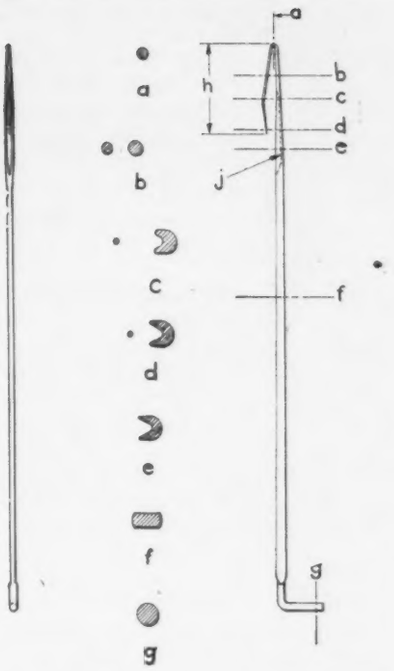


Fig. 1. *Spring-beard needles have reached a high degree of refinement which permits them to be used for very fine knitting.*

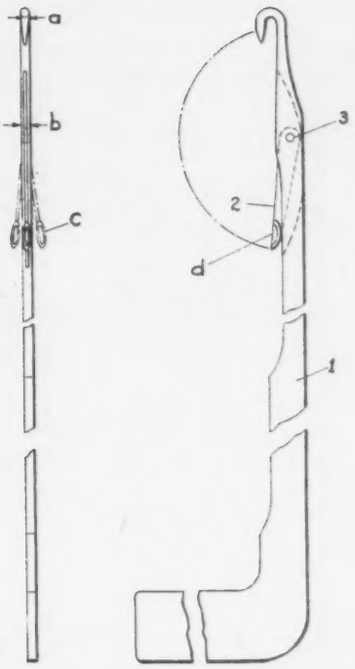


Fig. 2. *The chief advantage of the latch needle is that it simplifies knitting-machine design. Latch sideplay, shown at left, can be serious.*

the distance across the circle of needles from the center of the hooks on one side of the cylinder to the center of the needle hooks on the other side, and to state, at least, the needle-hook thickness. In straight-bed machines, like the Lamb, the gage is directly given as the number of needles per inch.

NEEDLE MEASUREMENTS. The essential dimensions of 42-gage spring-beard needles, when used in well-known flat full-fashioned hosiery knitting machines, as shown in Fig. 1, are the hook-wire thickness (*a*) 0.010 in.; thickness of the eye (*d*) 0.023 in.; shank thickness (*f*) 0.014 in.; with the beard length (*h*) 19/64 in. These dimensions in a 45-gage needle are respectively 0.009 in.; 0.0215 in.; 0.0135 in., and 17/64 in.; for a 60-gage needle, these dimensions are respectively 0.0065 in., 0.016 in., 0.009 in., and 15/64 in., although it is to be borne in mind that each machine-building organization, when it develops the needles it is going to use in its machines, varies these dimensions slightly.

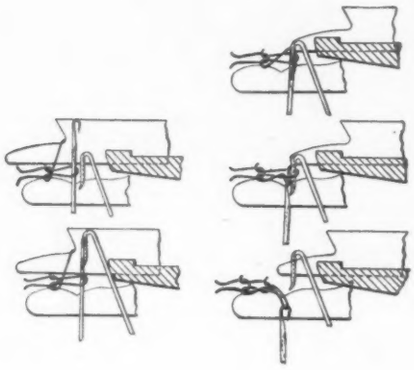
In use, spring-beard needles (usually associated with yarn-kinking sinkers) engage the new yarn in their open hooks when the end of the hooks, or beards, are considerably above the fabric line. The needles, as they descend, after the new yarn is somewhat above the end of the beards, have their beards closed; that is, the tips of the beards are buried in the grooves or eyes (*j*) before the tips of the beards reach the fabric line, so that upon continued downward movement of the needles, the loops of the fabric can pass over the closed beards as the new yarn in the hooks is drawn into kinks and finally into loops of yarn through the previously formed loops of the course of fabric.

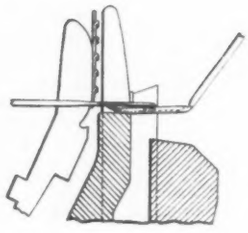
When spring-beard needles are used in modern flat full-fashioned hosiery machines, they are caused to form courses of fabric at a maximum rate of 84 courses per minute.

NEEDLE LIFE. It might be assumed that delicate implements of this kind would not operate for any length of time without breaking, but this is not true. As an example, a 24-section, 45-gage machine having about 10,000 needles, in the normal course of operation, over a period of 48 hr., will require the replacement of from 50 to 100 needles. The average breakage therefore is 75 needles out of 10,000 in 48 hr., or about 1½ needles per hour of machine operation to require the replacement of 10,000 needles.

Because flat full-fashioned hosiery machine needles must co-act with other implements, such as narrowing points and welt hooks (the operation of which probably breaks more needles than the knitting operation, even though it occurs only at intervals), and because narrowing takes place only on a small percentage of the needles, it follows that there must be needles, especially along the center of the needle bars where narrowing does not take place, which probably remain in operation 12,000 or more hours before they break. If we assume that the machine operates at an average speed of 72 courses per minute; that is, about 4,300 courses per hour, some of the needles form 51,000,000 or more loops before they have to be replaced. This is a remarkable performance, and it is unquestionably due to the simplicity of needle design, which cannot be even remotely matched by any other form of needle.

Spring-beard needles are also used in practically every type of knitting machine, although the shape of the beard portion and the wire size at the various parts of the needle may differ; and the shank and butt may be as different as is necessary to meet the different mechanical constructions of the machines and tempo of knitting. As an example, in none of these other machines does the eye (*j*—Fig. 1) extend so far down the needle shank because narrowing points (the tips of which are buried in the eye below the beard) are not used as they are in flat full-fashioned machines. Such other machines are also





Figs. 3 and 4. *Two-part needles with stiff hooks were designed to overcome some limitations of spring beards.*

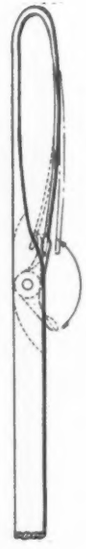


Fig. 5. *Combination latch and spring-beard needles in which the latch closes the beard.*

not built in gages so fine as flat full-fashioned hosiery machines.

FLAT-KNITTING PROBLEMS. When spring-beard needles are used in flat warp-knitting machines, which are usually built in 42-gage, the shank thickness (f) is considerably thicker, as the necessary lapping and wrapping of the warp threads, at each needle, tend to strain or flex the needles sidewise so that side rigidity is desirable, which is not the case in flat full-fashioned machines. Also, in warp machines, the needles are usually cast in a lead holder, three to a lead; and these leads are rigidly fastened to a needle-bar. The needles form 300 and upward courses per minute, and again they do this with a relatively small percentage of needle breakage.

Spring-beard needles are also used in Terrot machines, in which they are rigidly held in a dial with the hooked end of the needles projecting outwardly. In modern circular Crane and Tompkins machines, such needles are fitted with butts, as shown in Fig. 1, and positioned in grooves formed in a needle cylinder, so that the needles stand vertically. The shape of the beard is especially adapted for operation with bladed wheels of various kinds; and because this wheel action strains the needles sidewise, their shanks at (f) are made quite heavy somewhat like those in flat warp-knitting machines.

CIRCULAR MACHINES. Spring-beard needles are also in circular machines in which each needle is mounted vertically and slides up and down individually in its cylinder slot, and again the beards and other portions of the needle are formed to adapt them for this work. Usually supplementary punched jacks are attached to the butted end of the needles. These jacks are formed with strong butts which are acted upon by the cams of the machine. Such machines form loops at the rate of 300 and more courses per minute; and because the needle beard must be closed during less than 3/32 in. of the down movement of the needles, while the needles are acted upon downwardly by a cam angle which is in excess of 45°, it follows that the beards must be closed in less than 3/32-in. rotation of the needle cylinder circumference, thereby permitting an exceptionally short beard-closing time-period; and yet the needle breakage in such machines is very low.

Because of the simple one-piece construction of spring-beard needles, they are very cheap, costing for flat full-fashioned and similar machines, before the war, a little more than 1¢ each. Naturally, very efficient production machines have been evolved to manufacture needles of this type.

In addition, spring-beard needles, because of their simple one-piece construction, can be made in extremely fine gage. (Note hook wire size given for a 60-gage needle.) No other type of known needle can approach their fineness, efficiency, and long life; and it may well be asked why then were other kinds of needles developed and why are some of these other types in comparable universal use. The answers are that these other forms were developed to produce special types of fabric, which simple spring-beard needles could not produce, or they were developed because they were more automatic in their action; that is, their hooks could be closed with the movable parts of the needles acted upon by the yarn, thereby eliminating the necessity of providing, as in machines using spring-beard needles, separate means to close the needle hooks, which mechanism is quite intricate in some cases.

LATCH NEEDLES. Another needle that has been universally adopted is known as the latch needle (Fig. 2). It is believed that this type of needle was invented by Matthew Townsend, of Leicester, England, about 1847. Historically, it is stated that Townsend invented the latch needle because he broke off the point of a knife with which he was whittling the wooden parts of a flat knitting machine common in his time. The point of the knife became imbedded in the hard wood; and while idly swinging the point back and forth to disengage it from the wood, it occurred to him that a swinging latch could be used to close the hook of the needle and thus eliminate the long springy hook of spring-beard needles, which beard presumably was difficult to spring-temper properly in those days. The beards were either too soft and so would not spring open, or they were too hard and would break off.

However all this may be, latch needles immediately found favor, especially because most knitting machines in those days were relatively coarse gage and operated with relatively heavy yarns, at relatively slow speeds, so that the advantage of spring-beard needles, as regards their being especially applicable to fine counts, was of no particular moment.

As finer gage machines were called for, however, the difficulty of manufacturing latch needles was appreciated; so spring beard needles continued to be used in finer-gage machines or where fine and even appearing fabric was desirable; and it was not until the beginning of the 20th century that really fine-gage latch needles could be commercially produced.

The major difficulty prior to that time was that because knitting needles must be hardened and drawn; that is, made of tempered steel, which naturally requires that each needle be heated, it was found, when the needle thickness was less than about 0.030 in., that the thin walls of the needle, at the place where the latch is riveted, caved in and thus pinched the latch, so that it could not open and close freely.

The invention that solved this difficulty consists in assembling a piece of thin paper along with the latch, thereby permitting the latch pin to be riveted and at the same time permitting the assembly to be heated, without resultant latch-pinching because of the residual paper ash between the sides of the latch and the latch slot.

It has been possible gradually to develop the necessary machinery to produce commercially very fine-gage latch needles, but never, of course, anywhere nearly so fine as spring-beard needles, nor so cheaply.

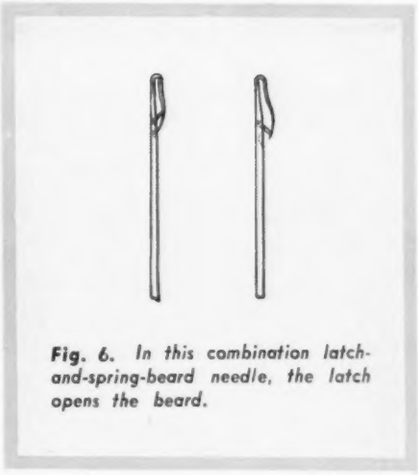


***Fig. 6.** In this combination latch-and-spring-beard needle, the latch opens the beard.*

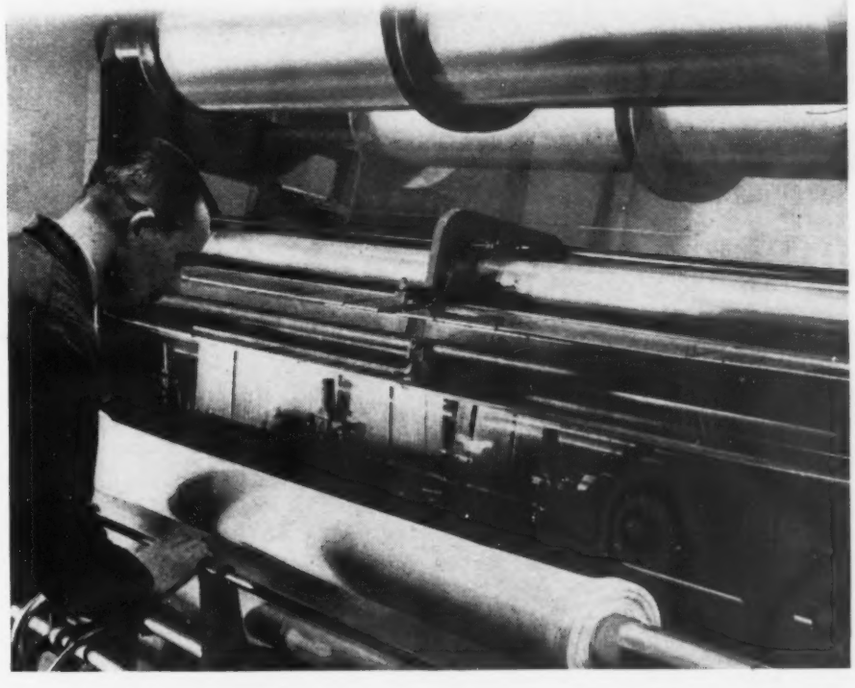
LATCH-NEEDLE PARTS. Latch needles, as shown in Fig. 2, are made up of three pieces—the shank (*1*), the latch (2), and the latch rivet (3). There is an open stiff hook at one end. The shank has a groove cut into it to permit the latch to hang therein for free swinging action. The shank metal remaining at each side of the latch forms what is known as the cheeks. The outside of the cheeks are countersunk at the pin (3) for later flush riveting and because, in fine-gage needles, the cheeks are so fine that countersinking and riveting are not practical. Shouldered screw rivets have been developed, and for them one cheek is threaded to receive the thread portion of the pin while the other cheek and latch are formed with a slightly larger hole for the reception of the shouldered diameter of the pin. Only slight riveting at the threaded end is necessary to hold the threaded and shouldered pins in place.

Of course there are numerous variations of latch needles as shown in Fig. 2, but basic parts are essentially as given here.

Fine-gage latch needles are in common use in which the thickness of the hood (a) is 0.0115 in. and the thickness (*b*) 0.013 in. Needles of this size are arbitrarily known as 80-gage, although unfortunately this is not a universally standard gage designation. Such 80-gage latch needles are usually spaced about 30 to an inch in a bar, or in a cylinder circumference.

The latch slot, naturally, greatly weakens the needle. In an 80-gage needle, the cheeks are only 0.004-in. thick, and this is not much metal in which to expect a rivet to hold and certainly not much metal to tap for the reception of a threaded shoulder rivet. Yet these fine needles are thoroughly practical, although they must be replaced more frequently than is the case with a spring-beard needle of comparable size; and they are, of course, much more expensive. They cost about 8¢ each, before the war, against about 1¢ for a comparable spring-beard needle. Their use, however, does eliminate the need of

Bolt-type needles are used on this F.N.F. (British) tricot machine which is credited with operating 1000 courses a minute.



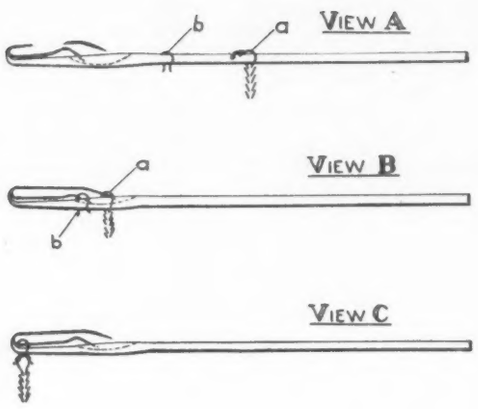


Fig. 7. Double spring-beard needles do not permit fabric to be cast off if yarn breaks.

having means, external to the needles, for closing and permitting the opening of the needle hooks, as is the case in spring-beard needles; and in some types of machines, external beard-pressing means are not only costly but, in circular hosiery machines, present machine-design difficulties because they must knit while reciprocating during heel and toe knitting and yet form relatively closed, tight heel and toe reversing gores.

Spring-beard-needle machines are usually arranged to have yarn sinkers, and no inventor or designer to date has been able to produce a commercially practical means of this type applicable to circular hosiery machines, although sinkers are used in circular spring-needle cloth machines.

LATCH PROBLEMS. A disadvantage inherent in fine-gage latch needles is that the finished loop on the needle shank, during the retracting motion of the needle, acts to swing the needle latch upward, so that it can close the needle hook and permit the new yarn to be drawn through the previously knitted loop and cast off (the same sort of action, in reverse) causing the closed latch to be swung downward by the newly formed loop, as the needles are projected. This swinging of the latches by the yarn and fabric loops, as long as the latches are free to swing between their cheeks and on their rivets, is not detrimental to the fabric; but as soon as the least resistance is set up to this latch-swinging action, the fabric loop on such a needle is distorted or cut; and such distortion naturally detracts from the smooth and even appearance of the fabric.

Fig. 8. Pressure of yarn, when in position shown, closes this bearded needle.

It might be supposed that needles should be made with more latch-cheek clearance, so that there would be less chance of latch-swinging resistance; but to do this is not practical, as that would permit the latch, as shown in the front view of the needle in Fig. 2, to swing sideways, as shown in dot and dash lines at (c). While the spoon (d) of the latch with such side swing would still cover the needle hook when the latch is swung over the hook, such freedom is not practical because the latch, especially when it is swinging at about right angles to the shank, would contact the closely adjacent knockover bits, of which there is one between each pair of needles, thereby bringing about wear between the latches. Wear on these bits would tend to sharpen the very thin yarn-contacting surfaces of the bits and the worn contacting surfaces of the latch and would produce surfaces that would abrade or even cut the filaments of the yarn, which naturally is not desirable.

CIRCULAR-MACHINE PROBLEMS. These latch difficulties are made appreciably worse because, in circular machines, means must be provided, in the form of a ring or partial ring, closely adjacent to and outside the needles, to prevent the latches from inadvertently closing as the needles are projected upwardly to the point where the spoon end of the latch is free of the previously knitted fabric; at which time, in modern revolving needle-cylinder machines, the latches —due to centrifugal force—would swing outwardly until they are at about right angles to the needle shank. The latch ring must prevent such action (except at the new-yarn drawing position), with the result that the latch spoons (d) rub along the inner surface of the latch rings. Even though this ring is hardened and ground, so that ring pitting does not result, there is, nevertheless, a wearing action on the latch spoon (d); and there is a tendency to wipe the latch into the (c) position, Fig. 2. All this movement is highly detrimental to the life of fine-gage latch needles.

In circular hosiery machines, in which the idling instep and heel needles are

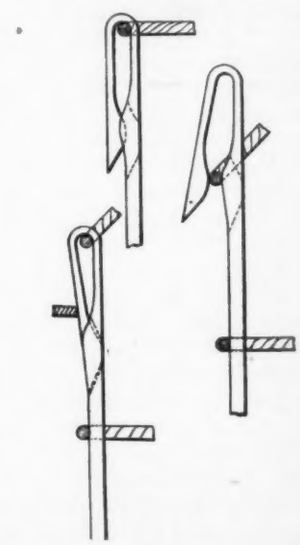


Fig. 9. Unusual spring-beard needle which prevents new yarn from sliding out of the needle hook.

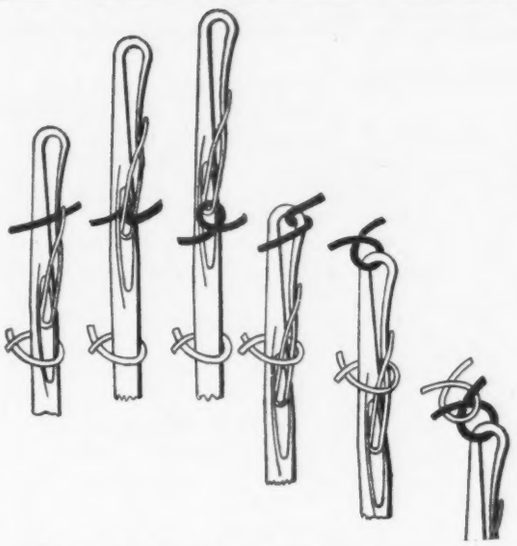


Fig. 10. *This needle has had considerable use in knitting twist-loop fabrics.*

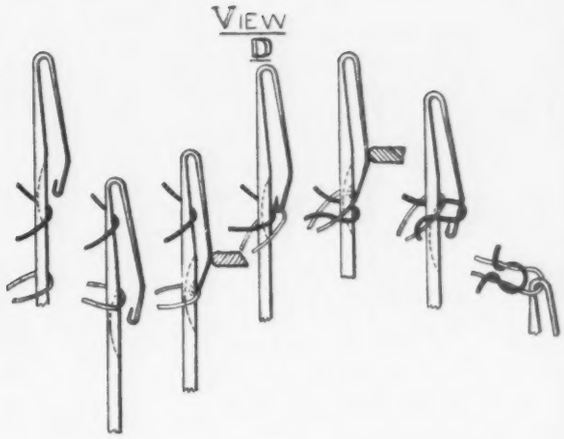


Fig. 11. *Lock-loop, anti-run fabrics have been knit with this hooked-beard needle.*

raised to a high, inactive position, these troubles are aggravated, because the latch spoons then wipe back and forth against the latch ring during the entire time of reciprocation. It would, of course, lessen the difficulty if the needle cylinders were stationary with the feeding yarns revolving; as in that case centrifugal force would not act to throw and hold the latches outwardly against the latch ring; but while stationary-needle-cylinder machines were used in the past, when only a few yarns were required, such machines now require many yarn cones, as is necessary in the production of the modern stocking. These cones must be rotated and in some cases reciprocated in stationary-needle-cylinder machines; and it is to eliminate the mechanical difficulties of doing this at high speed that modern circular latch-needle hosiery machines, as well as other types of circular machines, are now built with revolving needle cylinders. In other words, revolving the yarns was more detrimental than revolving the needle cylinders, but the writer questions whether the resultant latch trouble incidental to the present use of extremely fine-gage latch needles does not warrant building machines of the stationary-needle-cylinder type.

SINKERS NOT NEEDED. All latch needles, in commercial machines, are of the independently slidable type; and yarn kinking sinkers, to pre-measure the amount of yarn for each loop, were not thought to be necessary in machines using latch needles. Certainly such sinkers are not necessary to insure yarn getting into the needle hooks (as is the case with spring-beard needles), because the swinging latch, as it is swung by the fabric on the retracting movement of the needle, engages with the feeding yarn and forces it into the open hook. This is one of the major advantages of latch needles; that is, yarn-measuring sinkers are not essential to the correct hook feeding of the yarn.

Latch needles are being used in straight-bar machines of the warp-fabric type; but the latch advantages in that type of machine, as compared with spring needles, are not so important as for filling-fabric knitting, because the latch is not needed to insure the yarns getting into the needle hook, as each needle has one or more yarns wrapped around it by associated eye-needles. Nevertheless, latch needles are used in some classes of flat warp machines, merely because they do not require external beard-closing means, as is necessary with spring-beard needles. Latch-needle machines are not commercially built in gages finer than 28 needles to the inch, which is a perfectly safe gage for modern latch needle; and the detrimental latch contacting plates or surfaces—necessary in circular latch-needle machines—are not necessary in latch-needle warp machines, as the latches do not have to be held down at any time by external means; and yet most modern

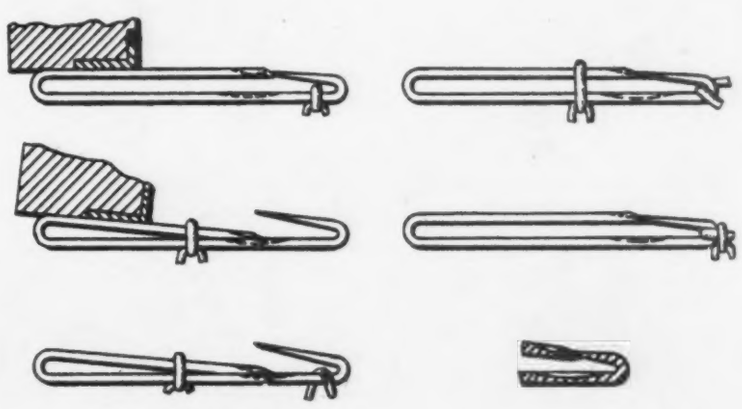


Fig. 12. *Designed for hand-operated knitting machines, this type of needle has also been used on toy knitting machines.*

flat warp machines are fitted with spring-beard needles, even though this entails the use of external beard-closing means. It is the writer's belief that this general practice has been followed because flat warp machines can be operated at much higher speed. Also, of course, spring-beard needles cost considerably less.

RIBBED FABRICS. Latch needles, with minor exceptions, are used in all kinds of ribbed-fabric knitting machines, because two sets of needles must be used, one set at approximately right angles to the other. If spring-beard needles were used, external beard-closing means would have to be provided for two sets of needles; and this has been found difficult to provide in the allowable space. Also, ribbed fabrics are usually not transparent and so do not show minor loop distortions as would be the case with fine, transparent filling-knit or warp fabrics; and ribbed fabrics are usually knitted in relatively coarse gage.

Latch needles have been universally used for what are known as Lamb machines which have two groups of needles mounted in straight bars with the needles of one group usually crossing between the needles of the other group. These machines have been used to produce a great variety of fabrics but are now mainly used in relatively coarse gage for underwear and outerwear, particularly the latter. It is believed that this type of machine was invented in Europe by Eisenstuck in about 1857. The machine, however, is known as the Lamb machine here and abroad. It takes its name from the inventor and builder, Rev. Isaac Lamb, who is supposed to have built the first machine of this type in this country in the early 1860's. The same latch difficulties are encountered in this type of machine but are not particularly detrimental because of the relatively coarse gage and slow speed of operation.

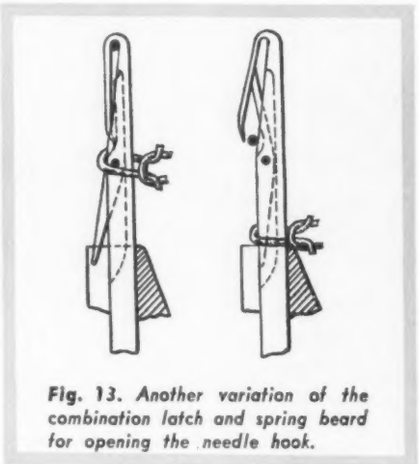


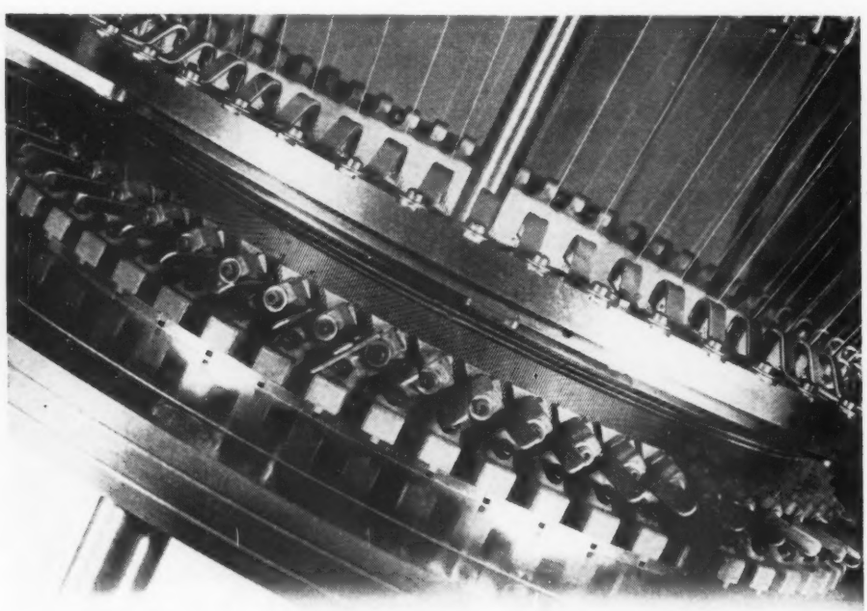
Fig. 13. Another variation of the combination latch and spring beard for opening the needle hook.

Latch needles, with a hook and latch at each end, are also used to knit links-and-links filling fabrics. Such fabrics are usually knitted on two-bed machines, with beds mounted opposite each other and with punched sliders engaging alternately with the hooks and actuating the needles first to one side and then the other. Similar needles are also used to produce ribbed fabric in double circular cylinder machines in which one cylinder is mounted over the other.

LATCH VS. BEARD. Summarizing, therefore, there would appear to be no question as to spring-beard needles being the best type to use for producing all fine-gage fabrics; whereas, the latch needle—because of its more automatic action not requiring external beard-pressing or yarn-kinking or sinker mechanisms—permits simpler machine design, but at the sacrifice of fabric appearance, slower speed, and at greater needle cost, especially in fine gages.

While the simple spring-beard and latch needles previously described are the ones most commonly used, many attempts have been made to improve both generic types, either for reasons of supposed simplicity or in order to produce special fabrics which regular needles are not adapted to do; and some of these needles have been used quite extensively.

Machines normally using spring-beard needles, like full-fashioned hosiery machines, have been experimentally evolved with simple, stiff hooked needles; that is, needles in which the hook is short and not springy. A good reason for using such needles would be that the needle stroke, because of the shorter hook, could be thereby considerably shortened, which would be an important item in high-speed machinery. Also, a stiff-hooked needle might be somewhat cheaper to manufacture; but because supporting and operating devices have to be used for the additional hook-closing elements, the overall cost would be greater, not only because two elements are used, but also because two elements, instead of one, would have to be manipulated by cams or other mechanisms. Such stiff, simple, hooked needles are shown in Figs. 3 and 4. Both arrangements are shown for adaption to what are known as Cotton full-fashioned knitting machines, such as those commonly used to produce full-fashioned hosiery and underwear. If needles of this type have any real commercial merit, it would be in machines of extremely fine gage in which the very delicate wire, of which normal beards



Latch needles used in a new multiple-feed Jersey machine can be seen behind the yarn feeds.

are formed, might be thought troublesome, although it is remarkable how little trouble such beards really cause.

COMBINATION NEEDLES. Combinations of spring-beard and latch needles have been used, especially in circular, independent-needle, fabric machines. An example of such needles is shown in Fig. 5. The obvious reason for using needles of this kind is to eliminate the necessity of closing the beards by means separate from the needles. An additional advantage, especially in ribbers, in which two sets of needles must be used, is that latch interference between one set of needles and the other, due to latches that in time swing off center as may be seen at (c) in Fig. 2, is mitigated, because the latch can then be very short.

Fig. 6 shows a combination latch and spring-beard needle which works in reverse of the needle shown in Fig. 5; that is, the needle beards are normally closed and are opened by the new yarn at the time it moves downward out of the hook of the needle. This needle has all the advantages of the needle shown in Fig. 5, with the additional advantage that if no new yarn is fed to the needle, by reason of breakage or other reasons, the fabric on the needles will not be cast off.

In many large-diameter body-fabric machines, especially those with multiple feeds, and more particularly machines of this type that are not fitted with yarn stop motions, in order not to permit the fabric to be cast off the needles and so run all the cloth off the needles when a yarn breaks at any feed, double spring-beard needles, as shown in Fig. 7, have been evolved. With such needles, the yarn (a), View A, represents the fabric loop and the new yarn (*b*) is shown prior to its entrance into the hook of the needle. After relative movement of the needle in relation to the fabric has taken place, as shown in View B, the new yarn (*b*), kinked around the needle, contacts and depresses the underlying beard and thereby depresses the overlying beard in advance of the time the loop (a) of the fabric comes to the tip of the latter, so that the loop (a) will be cast off over the closed overlying beards; and the new yarn (*b*) will be drawn through the old loops in the subsequent movement of the parts, as shown in View C. It is obvious that if there was no yarn (*b*), the outer beard would not be depressed with the result that the fabric loops (a) would pass under the end of this open beard and thus not be cast off.

Spring-beard needles have also been used as shown in Fig. 8, more particularly in warp machines in which the warp of the individual yarns can be used to cause the long, springy hook to be closed by the inner element as the needles are drawn down.

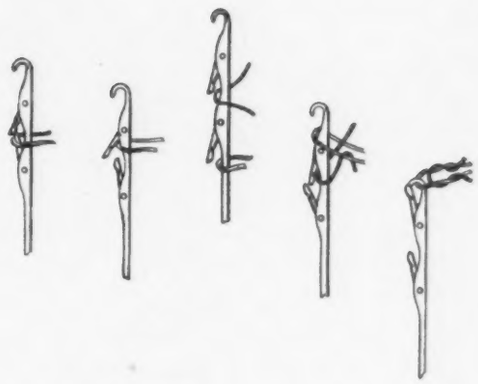


***Fig. 14.** Double-latch needles have been used extensively for knitting lock-loop, anti-run fabrics.*

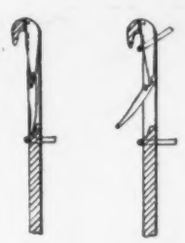


***Fig. 15.** Pressure of yarn throws out the latch in this early form of needle for warp-knitting machines.*

UNUSUAL NEEDLES. Fig. 9 shows a spring-beard needle of somewhat unusual design. It was developed for the special purpose of insuring that the new yarn cannot inadvertently slide down out of the needle hook.

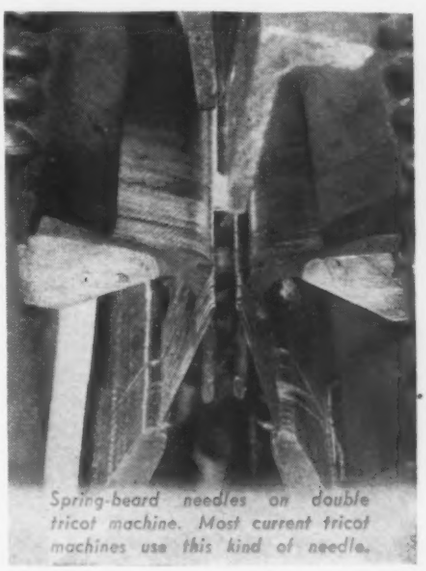
As shown in the illustration (because the needle eye is cut entirely through the shank) such a needle would be considerably weaker than regular spring-beard needles of comparable gage; but unquestionably the eye need not be cut entirely through the shank to get the advantage desired.

Spring-beard needles shown in Fig. 10 were evolved and have found considerable use in the production of what is known as twist-loop fabric. It might be believed that the rather intricate beard shape would make this needle impractical.

Spring-beard needles shown in Fig. 11 were evolved and have found some use in the production of what is known as separate lock-loop, anti-run fabric. The series of diagrams clearly indicates the knitting procedure which, broadly speaking, is to prevent the casting off of previously formed fabric loops until after the course formed subsequent thereto is cast off.

The action of the hook-ended beard in the View D stage was found a source of trouble.

The rather odd needle, shown in Fig. 12, in which an underlying resilient portion is used to close the rigid hook,



Spring-beard needles on double tricot machine. Most current tricot machines use this kind of needle.

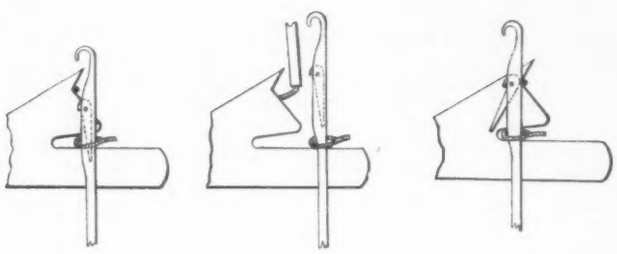


Fig. 16. *This needle evolved from that shown in Fig. 15 and is considered more practical.*

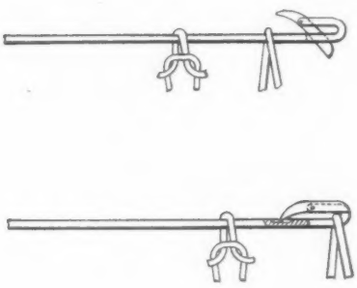
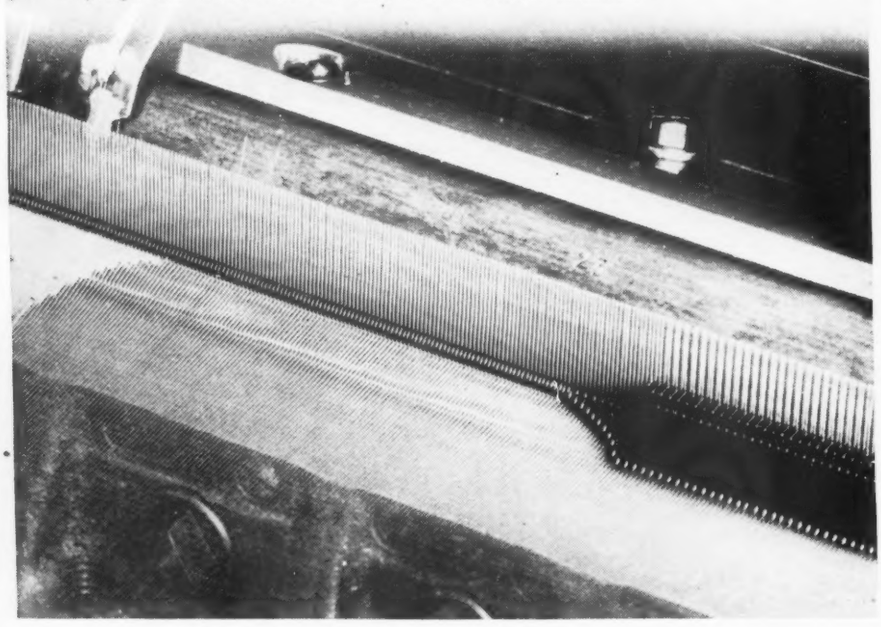


Fig. 17. *Early inventors went to great lengths to solve the problems of closing the needle hooks, as shown here.*

Full-fashioned machines are one of the greatest users of fine spring-beard needles. Spring-beard needles are also used in some circular machines.



was originally evolved for hand-knitting machines of relatively coarse gages, more especially toy knitting machines. This form of needle might well be modified and adapted for other uses.

The needle shown in Fig. 13 is a combination latch and spring-beard needle in which the spring beard is normally closed as shown at the left. The fabric, when in position as shown at the right, acts on the latch to open the beard, so that no external parts need be used to manipulate the beards. Obviously, such needles, when forming the first courses of fabric; that is, from the empty needle stage, must have external means to act on the lower end of the beard-opening latches to open the needle hooks, so that they can take the new yarn. This means must continue to function until sufficient fabric is formed to take over this work.

SPECIAL STITCHES. Multiple-latch needles were evolved and have been used quite extensively to produce what is known as separate lock-loop, anti-run fabric, such as can also be produced by the needles shown in Fig. 11. These multiple-latch needles are shown in Fig. 14 and were invented and developed by an Englishman named Mills. The fabric is generally known by that name, although the needles shown in Fig. 11 were used much earlier.

Latch needles, in coarse gage, have also been manufactured like those shown in Fig. 15, especially for an early form of warp-knitting machine. The top and bottom latch arrangement acts to prevent the casting off of the fabric loop if a new yarn is not being fed to the needle. In other words, it is the new yarn that slightly swings the top latch and projects the bottom latch, so that the previously formed fabric loop can get

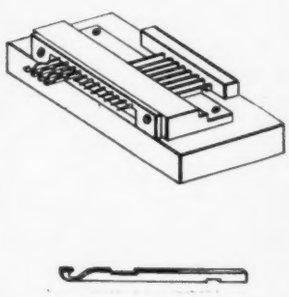
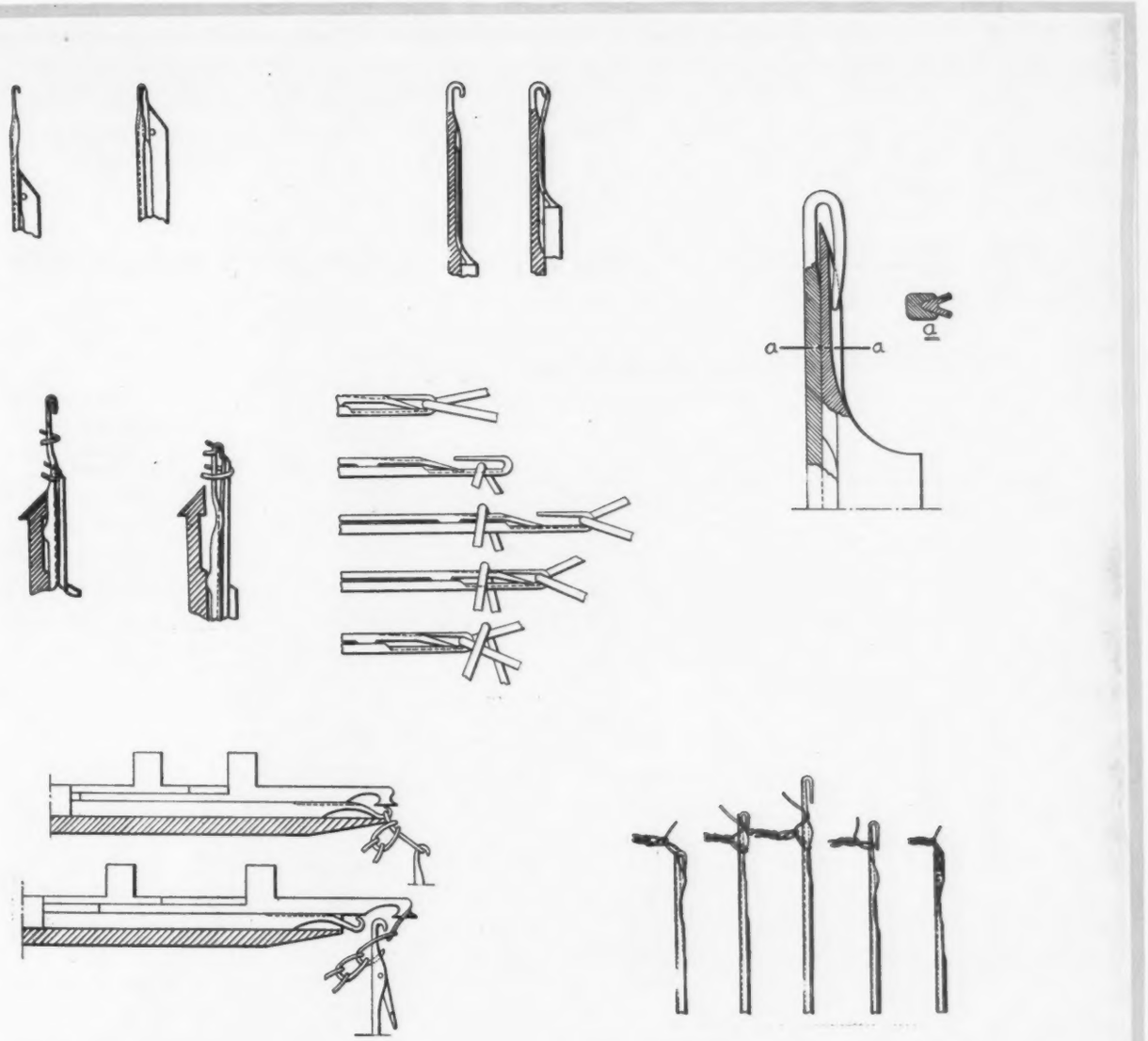


Fig. 18. *Bolt-type needle for en masse operation, although an early form, could be made in fine gage.*



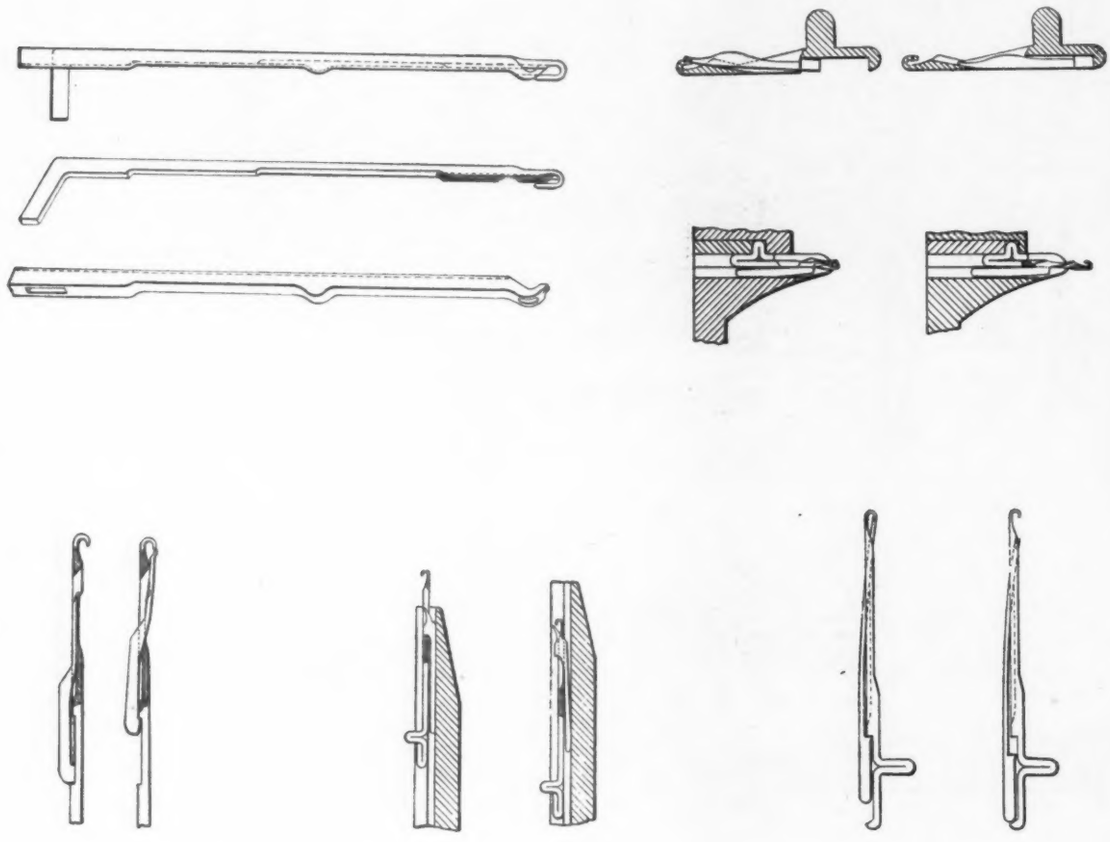
Figs. 19, 20, 21, 22, 23, 24, and 25. *Various forms of bolt-type needles, all of which have bolt and needle operated independently of each other.*

under the bottom latch and swing it to close the open hook and so permit the fabric loop to be cast off. The needles shown in Fig. 16 were evolved for the same reason and would undoubtedly prove more practical.

An early form of hook-closing means, probably feasible in heavy needles, is shown in Fig. 17. This construction made use of a latch riveted to swing in the end of the hook. The latch was heavier at one end than the other, so that its natural tendency was to keep the hook open. The new yarn as it entered the hook caused the end of the latch to be buried in the eye of the needle, thereby closing the hook so that the fabric loop on the needle could be cast off. This construction is not shown with the idea of suggesting that this form of needle might be practical in modern machines, but merely to indicate to what extent early inventors went to attempt to solve this needle-hook-closing problem.

BOLT NEEDLES. Needles generically differing from spring-beard and latch needles are known as bolt needles and have taken many forms, many of which have been found practical. Some of them have yarn-actuated needle-hook closing bolts or sliders, while others use external, mechanical means to actuate the bolts or sliders. They all have valuable inherent advantages, as well as minor disadvantages, not found in latch or spring-beard needles. An advantage is that all needles of this type require very little motion, compared with other known types of needles.

Some bolt needles can be made in very fine gages, without serious sacrifice of strength; and in most cases, the extraneous bolts of slider-operating means is no more costly than extraneous beard-closing means. While some forms that will be shown and described probably could not be made so fine, let us say, as 51-gage and finer spring-beard needles, some of them probably could be made in a finer gage than latch needles; and regardless of what gage they were made in, they would produce fine, uni-



Figs. 26, 27, 28, 29, 30 and 31. *All of these bolt needles, in which the hook element is independently movable, have been used; some are in use even now.*

form-appearing fabric, even with fine or weak yarns, with far less difficulty than is encountered, insofar as fabric appearance is concerned, with comparable fine-gage latch needles. As far as the writer knows, bolt needles have not been shown to be practical for loop transferring, as is required in flat full-fashioned hosiery machines.

OLD TYPE. Bolt needles were probably developed and used prior to the development of latch needles, although it is doubtful whether they were in use before spring-beard needles. A very early form is shown in Fig. 18. Such needles were used in a flat-bar machine for *en masse* operation and formed a rigid part of the bar which was movable. The bolts were slidable in slots in the bar and moved parallel to the needles, but independently thereof. It will be observed that even this very early form could have been made in very fine gage.

Many forms of bolt needles have been developed for machines in which the needles are independently movable, particularly for use in circular machines of this class. Various forms of this type, in which both the bolt and the needle were manipulated independently of each other by cams, are shown in Figs. 19, 20, 21, 22, 23, 24, and 25. All these needles were used in a practical way, at one time or another; and some of them are today in use in relatively modern machines.

Another form of bolt needle is one in which the needle is independently movable. The bolt acts in properly timed relation to the needle hook by means of friction between the bolt and needle, and projections from the needle shanks act as timers on the bolt. A group of such needles is shown in Figs. 26, 27, 28, 29, 30, and 31. All of these have found practical use in the past, and some of them are undoubtedly in use in modern machines.

A valuable characteristic of bolt needles, as compared with swinging-latch needles, is that the side swing of the latch which quickly develops in ordinary latch needles, as noted when Fig. 2 was discussed, is not a factor.

YARN-ACTUATED BOLT. Another form of bolt needle that has a great deal of merit is one in which the loop of the fabric and/or new yarn causes the bolt

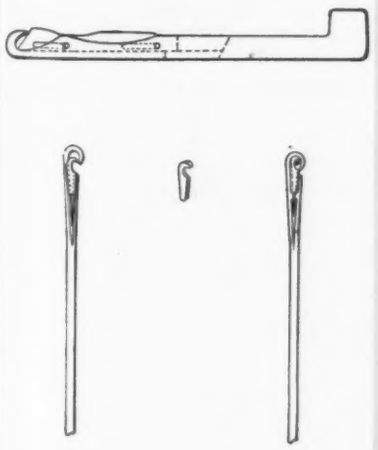
to open and close the needle hook. Needles of this type are shown in Figs. 32 and 33.

In one such construction, the fabric loop acting on the bulges formed on the outer surface of the bolt moves the bolt backward and forward in relation to the needle hook; whereas in the latter form, the new yarn acts on the bolt to draw it upward to close the hook of the needle, as shown below at the right, with the fabric loop acting on the bolt to open the needle hook, as shown at the left. This latter type is especially applicable to warp-knitting machines.

Bolt needles as shown in Fig. 34 have also found commercial use, although this particular type which was used in a recently evolved straight warp-knitting machine, is objectionable even in intermediate gages, because the shank of the needle is appreciably weakened by the bolt slot which requires a complete piercing of the shank. In addition, a widening of the tip end of the bolt, so that the hook can be safely covered by the bolt (sideways considered), is not possible because such a wider area could not be caused to disappear into the cheek portion of the needle, as is necessary.

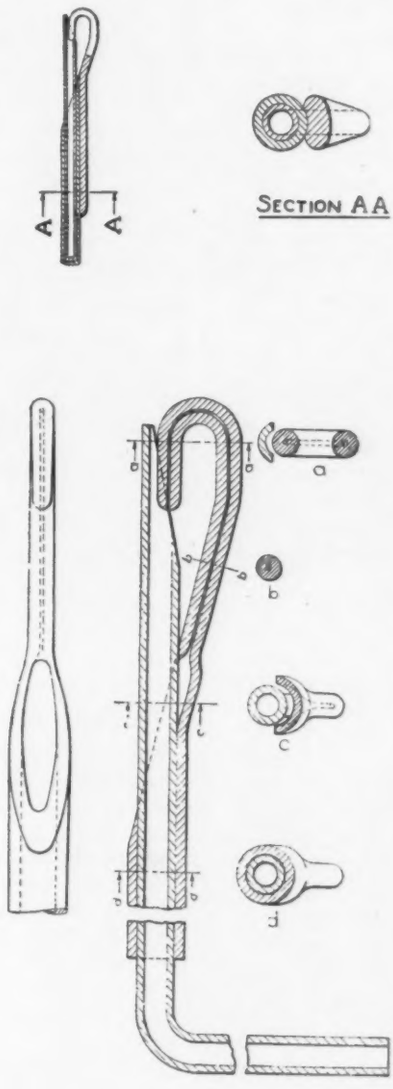
It is probably for these reasons that the bolt needles shown in Figs. 35 and 36 was evolved, although the one shown at the top has a serious objection in that the hook portion must be brazed or otherwise permanently fastened to the larger one of the two tubes. Such a process, even if the high cost is not considered, is hardly practical in other than extremely coarse-gage needles.

PRACTICAL BOLT NEEDLE. The bolt



Figs. 32 and 33. The bolt on both of these is actuated by the yarn and/or fabric.

Fig. 34. A recently evolved warp-knitting machine used this form of bolt needle.



Figs. 35 and 36. These forms of bolt needles do not have seriously weak shanks as does the one shown in Fig. 34.

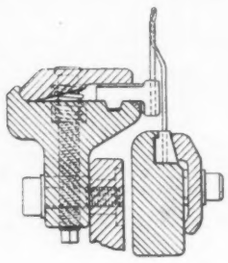


Fig. 37. *Mounting arrangement suitable for needles shown in Figs. 34, 35, and 36.*

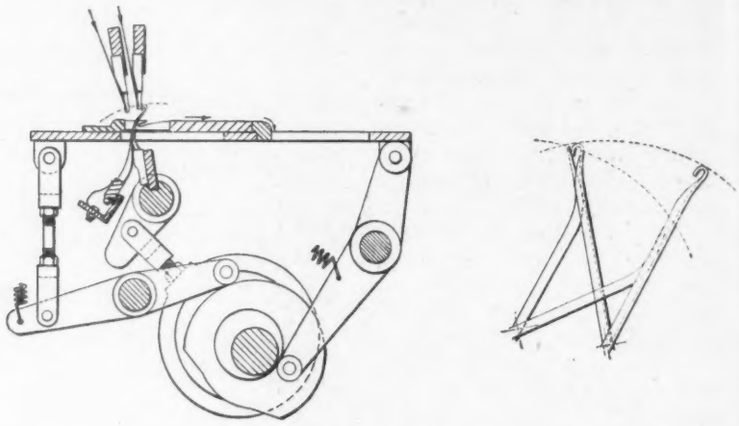


Fig. 38. *New bolt needle designed for high-speed warp knitting swings through arc instead of moving up and down.*

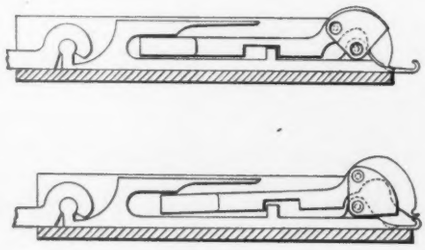


Fig. 39. *This intricate mechanism for opening and closing the needle hook was used in fine gages 45 years ago.*

needle shown in detail, Figs. 35 and 36, is probably the outcome of experimental work on the previous forms. In any case, the needle shown in detail is thoroughly practical and undoubtedly can be commercially produced in finer gage. Such needles are already in test commercial use in a British-designed flat warp-knitting machine; and it is reported they are capable of very high speed operation; that is, at 800 strokes and upward per minute.

The bolt needles shown in Figs. 34, 35, and 36 can be mounted as shown in Fig. 37. The needles are rigidly held, in lead or otherwise, in a vertically moving bar, with the bolts mounted, in lead or otherwise, in a lower bar which also moves vertically in correct timed relation to the needle bar.

The most recent attempts by inventors and machine builders to develop high-speed knitting machines have been in straight warp-knitting machines; in order to achieve really high speed, it was thought necessary, in a number of cases, to develop new needle forms. Fig. 38 shows such a new bolt needle and its motions, as well as a general outline of the co-acting elements and parts. While the writer does not believe the particular arrangement shown is practical or points the direction in which to attain high speed, it is a clear indication of the extent to which inventors and builders are going in an effort to attain high speed; and experience has probably taught them they must start with the needle. The reader is reminded that this entire problem of needle construction is simply how best to open and close the little needle hooks.

The problem is (1) how to make the process safe and certain; (2) how to evolve a form that can be used in fine gages; (3) how to keep the needles cheap; and (4) how to cause the needles and their co-acting elements to function properly at high speed and yet produce desirable even-appearing knitted fabric.

ANOTHER TRIAL. The arrangement shown in Fig. 39 is shown as a further indication of the extent to which inventors and designers of knitting machinery have gone in the past in order to open and close needle hooks. This arrangement was developed and used by Burson in one form of his two-bed, or so-called Lamb knitting machine; and it is the writer's understanding that such needles were successfully used in a pilot model machine in relatively fine gage built some 45 years ago.

Summing up, it is the writer's belief that the spring-beard needle, as compared with all other needles, has been developed to the greatest degree of perfection and that it is especially desirable in fine and ultra-fine gages. There seems to be little basic improvement possible in this form of needle. The latch needle, with all its objectionable features, when used in fine gage has also probably reached its highest degree of perfection in the so-called 80-gage; that is, 0.012-in. shank thickness. It is undoubtedly a desirable needle for many purposes, but it certainly cannot be expected to produce fabric comparable to fabric formed with fine-gage spring-beard needles. The bolt needles have undoubtedly not been developed to their highest degree of perfection and degree of fineness; and there would appear to be room for much development work with this form, especially because it inherently has so many desirable characteristics.

Finishing Plant Uses INFRARED on RAYON

HIGHLIGHTS: *Infrared auxiliary units aid processing heavy rayon fabrics—Waldrich Co. uses them to maintain normal drying speeds—Radiant flame heaters installed in fuel-controlled batteries.*

INFRARED RADIANT HEAT for use as auxiliary drying equipment is being used advantageously by Waldrich Co., Delawanna, N. J. Dyeing, bleaching, and finishing a wide range of rayon-fabric constructions, the company finds the infrared dryers of particular use when processing heavy fabrics which require more heat or slower running speeds for proper drying.

The equipment used is manufactured by Carbomatic Corp.; and in most applications at Waldrich, the heaters are installed in batteries of two to five. Controls of the fuel supply—gas and air—permit using any number of the units needed for drying a particular fabric.

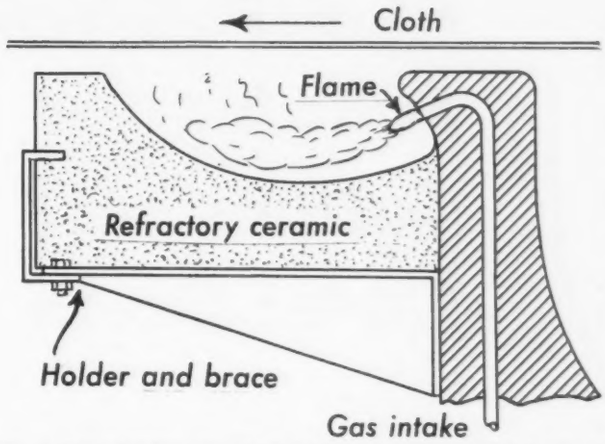


Fig. 1. The refractory ceramic is held in place by a metal frame, and the gas-and-air mixture is released above it and directed obliquely upon it. The curved ceramic throws the heat rays toward the fabric.

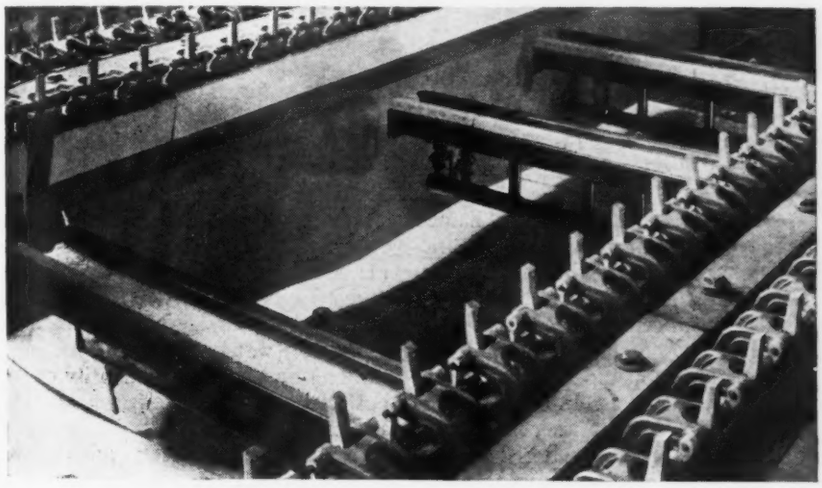


Fig. 2. This battery of three heaters and another battery of two are used on a tenter-palmer combination in conjunction with steam-heated entering drums and steam pipes. The versatility of this heating set-up permits processing light-weight or heavy-weight fabrics at the normal speed of 50 yd. per min.

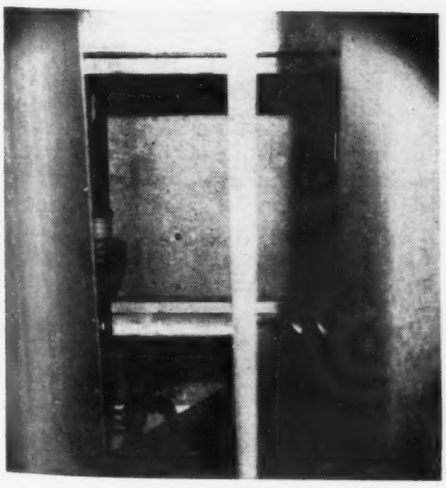


Fig. 4. A heater inside the dry box on the floor above the printing machine can be seen here between sheets of the vertically running cloth. Five burners, controlled by a thermostat, are used as auxiliaries in the dryer.

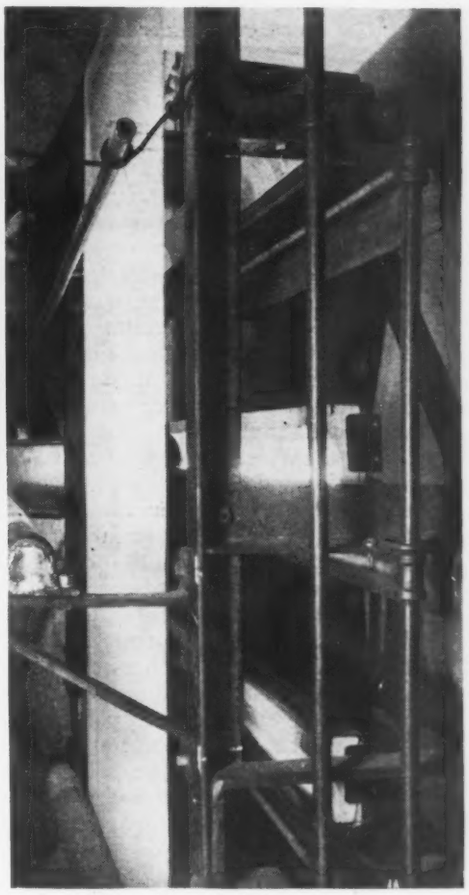


Fig. 3. A battery of three units is mounted on this mangle between the quetch box and dry box. Note that only the middle burner is in use for this light-weight fabric.

Durable FLAMEPROOFING Suitable for Cotton Outer Garments

Treated fabric will not continue burning after flame is removed.

HIGHLIGHTS: *Cloth for work uniforms, life-jacket vest, and coveralls can be given excellent resistance to flames — Fabric gains 30 to 60% in weight and is full, soft, waxy; withstands laundering — Application by 2- or 3-roll padder is simple.*

By K. S. CAMPBELL and J. E. SANDS

Southern Regional Research Laboratory
U. S. Department of Agriculture

A DEFINITE NEED, which became even more urgent during the war, has existed for a flameproofing treatment for textiles that will meet satisfactorily two major requirements. First, it must be suitable for wearing apparel; and second, it must remain effective throughout the life of the material regardless of the number of launderings received. To conform with the first specification, the treatment must not effect unduly the physical characteristics of the cloth; while to conform with the second, it must be highly resistant to water, to alkaline hydrolysis, and to removal by emulsifying action. Although a number of chemical substances, such as the ammonium salts, provide relatively efficient flameproofing for cotton, unfortunately these efficient agents are water-soluble; a few minutes' contact with water destroys all flame resistance of the proofed material.

This is a flameproofing method which, though not radically different from some finishing processes already in use, fulfills to a large extent the two essential requirements, and is believed practical especially for application to goods for certain types of cotton outer garments.

TERMINOLOGY. By the term "flameproofing" is meant rendering a fabric completely resistant to the propagation of flame across its surface after the igniting source has been removed; that is, a properly flameproofed material will not support combustion independent of an external source of heat. In contact with open flame, however, or at elevated temperatures, flameproofed material can be expected to char and decompose.

Until recently, the theory of the mechanism of flameproofing textiles has rested upon four postulates, as follows: melting or fusing of the protective substances to form a film which protects the fibers by excluding oxygen; formation by the protective substances of noncombustible flame-smothering gases; endothermic changes in the protective agents; and heat-conduction effect by the flameproofing agents. While the first of these postulates undoubtedly can be used to account for a major part of the action of borax-boric-acid mixtures, no single postulate offers a complete explanation of the flameproofing phenomenon.

Recent work by Ramsbottom and Snoad[7], Leatherman[8], and Tyler[10] proposed that the principal mechanism accounting for the flame-protective action of various substances is apparently a modification of the thermal decomposition reaction which both lowers the temperature at which treated cellulosic material decomposes and produces a much larger proportion of non-inflammable and slow-burning combustion products (water, carbon dioxide, and carbon) and a smaller quantity of combustible products (inflammable gases and tar) than produced when untreated fabric is burned. Such action is characteristic of various acid substances in cellulosic material, and it appears that most flameproofing substances are acidic in nature, or produce acids when heated.

Antimony chloride, for example, has the properties of an excellent flameproofing agent but cannot be so used because of its acid character. The usefulness of a mixture of chlorinated wax and antimony oxide probably depends upon the formation of antimony chloride at a combustion temperature near that of cotton fiber. Flameproofing thus produced is virtually a catalytic effect favoring the formation of non-combustible thermal degradation products and raising the kindling point of the protected material, so that ignition and flame propagation are difficult if not impossible.

In some fireproofing treatments, specifically those employing metallic oxides,

there is an undesirable secondary reaction commonly known as "afterglow," by which is meant the flameless combustion that may occur in the treated fabric after a test flame has been removed from the material. Leatherman[3] has termed this reaction a "catalytic incandescent oxidation" of the carbon remaining after the initial "catalytic pyrogenic decomposition of the cellulose." Thus, the oxides that are instrumental in bringing about the desirable modification of the primary thermal reaction result likewise in the production of an undesirable afterglow.

EARLY WORK. The first work of note on the permanent flameproofing of textiles was that of Perkins[6] who, in 1912, successfully developed a process which had been suggested more than fifty years earlier by Versmann and Oppenheim[11], based upon the precipitation of stannic oxide in the fiber. Material treated by this process, however, among other disadvantages, exhibited an extreme afterglow which, in fact, consumed the entire fabric by flameless combustion.

In 1932, a process using a vinyl-chloride resin was patented by Snyder[8] for reducing afterglow in flameproofed fabrics. In 1933, Leatherman began work which led to a series of patents, one of which[4] covered improvement of the Perkins' method by use of chlorinated rubber or chlorinated diphemyl derivatives to reduce afterglow; and another of which[5] claimed that adequate proofing could be obtained by merely applying certain metallic oxides dispersed in a vehicle of chlorinated paraffin. Clayton and Heffner (assignees to William E. Hooper & Sons, Inc.) also in 1939 patented a composition consisting primarily of zinc borate in chlorinated paraffin[2], and in 1942 patented the use of antimony oxide in chlorinated paraffin[9]. This latter combination has provided the basis for a treatment used during the last several years on millions of yards of canvas goods for military tentage, tarpaulins, and the like.

CLOTHING USE. A somewhat different method recently described[9], which is said to be suitable for clothing, makes use of a dispersion of antimony oxide in a vinyl-chloride-vinyl-acetate copolymer solution. This treatment results in a rather stiff fabric, particularly after hot pressing or drying, and suffers from lengthy afterglow. The resistance to laundering, however, is considered extremely good.

Another type of flameproofing treatment of recent origin is apparently produced by actual chemical modification of cotton cellulose and in many respects is the most interesting development to date in this field. Tests show that material treated by this process is unaffected by dry cleaning and is highly resistant both to pure water, such as rain, and to mildly alkaline washing; its resistance to salt water and to long immersion in running tap water of relatively high alkalinity, however, appears limited. It has the further advantage of not affecting noticeably the hand of the fabric. The treated fabric weighs only 15 to 20% more than the untreated cloth. A distinct loss in breaking and tearing strength, which is brought about in the cloth by this treatment, should be considered in the light of the end use for which the fabric is desired.

After extensive experimentation, the conclusion was reached that it is impossible or impracticable to insolubilize or bind to the cloth any of the various soluble flameproofing substances. It was necessary, therefore, in order to provide durable flameproofing, to turn to the few available methods which are unaffected by water, and to attempt to minimize the disadvantages inherent in these treatments.

FACTORS CONSIDERED. The three principal disadvantages inherent in the use of insoluble agents are: first, low efficiency (30% or over, based on the weight of the fabric, is usually required); second, the need for a binding agent which adds weight and stiffness without increasing flame resistance; and third, a strong tendency of the substance employed to produce extensive afterglow.

Tests demonstrating the relative efficiencies of the known insoluble flameproofing agents indicated that a combination of an antimony compound with a chlorine-containing resin was outstandingly the most effective treatment. Such a combination is the basis of the commercial treatment ordinarily employed to meet the requirements of Federal Specification CCC-D-746 and J.Q.D. Specification 242 for Fire-, Water-, and Weather-Resistant Duck (now U. S. Army Specification No. 6-345, Fire-, Water-, Weather-, and Mildew-Resistant Duck). But fabric finished to meet these requirements is entirely unsuitable for clothing because of its poor hand and relative impermeability to air, which are partly due to the weight and close weave necessary in the base fabric to meet strength and water-resistance tests. Nor was it found possible to apply this specified treatment to lighter fabric with satisfactory results, regardless of the amount added. Moreover, the resistance of this formula to hot alkaline washing is definitely limited, thus ruling out its use for goods intended to be laundered.

METHOD DEVELOPED. Further experimentation showed, however, that utilization was possible, under certain conditions, of the basic chemical principle involved in the "746" finish to obtain a finish more satisfactory from the standpoint of physical properties having as well a high degree of resistance to laundering. This result was produced by choosing a resin of proper chlorine content; by employing an emulsion technique (either water-in-oil or oil-in-water); and by incorporating a water-soluble urea-formaldehyde resin mono-

(Continued on page 222)

FLAMEPROOFING FORMULA

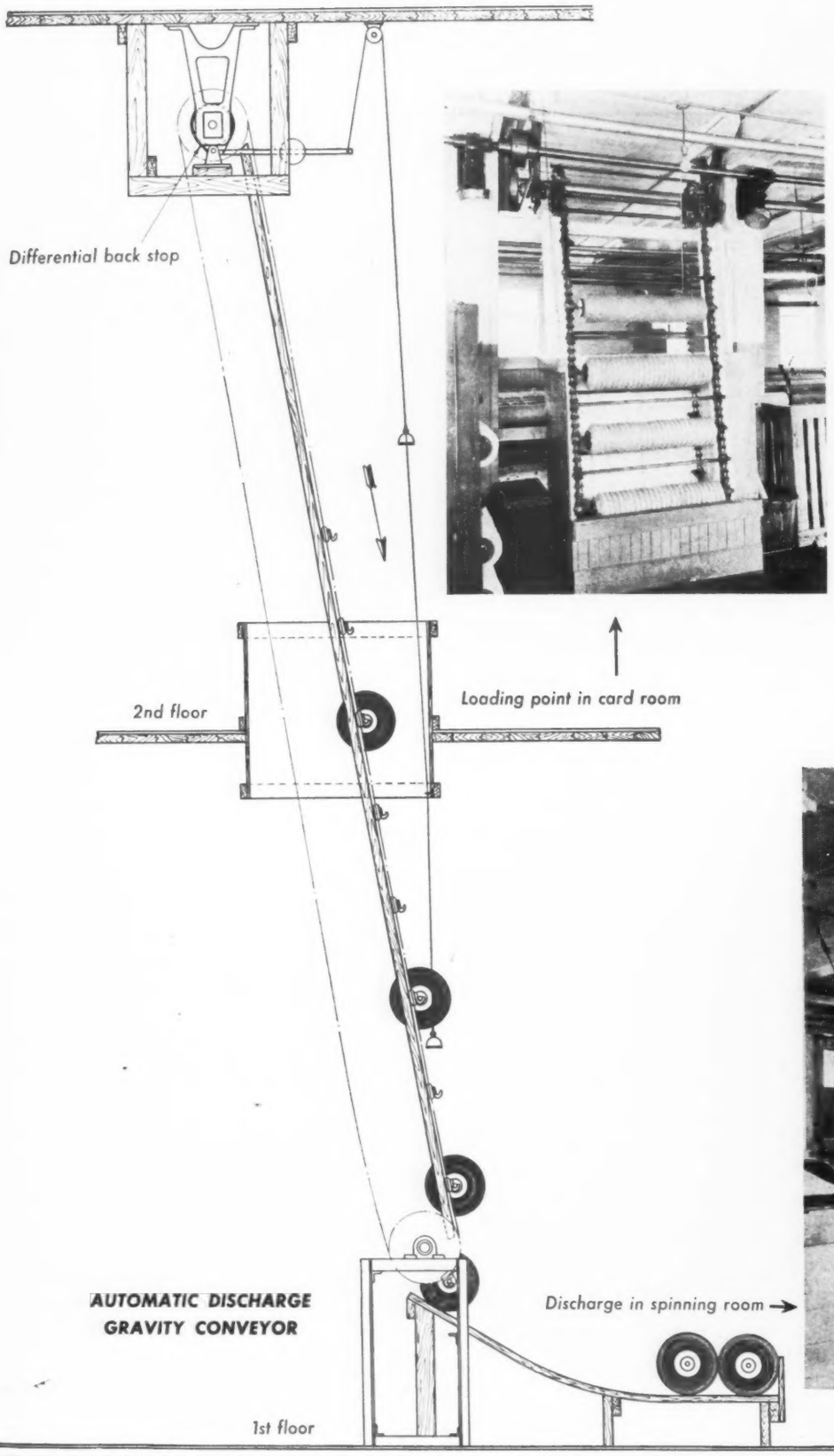
(For 2.5 yd. per lb. cotton drill)

		Parts by weight
(A)	Urea-formaldehyde resin monomer	9.62
	Catalyst for resin	0.40
	Water	22.26
(B)	Chlorinated paraffin (70% chlorine conten.)[1]	14.40
	Chlorinated paraffin (42.5% chlorine content)[1]	12.00
	Solvent (Hydrocarbon; e. g., Stoddard solvent)	25.15
	Oil-modified alkyd resin [2]	3.89
(C)	Antimony oxide, 300 mesh or finer	12.28

The solids in (A) and (B) are dissolved in the indicated solvents; then (A) is added to (B) with stirring and forms an emulsion into which the antimony oxide then is dispersed.

[1] *This material is readily available commercially.*
[2] *An alkyd resin containing approximately 50% solids is satisfactory.*

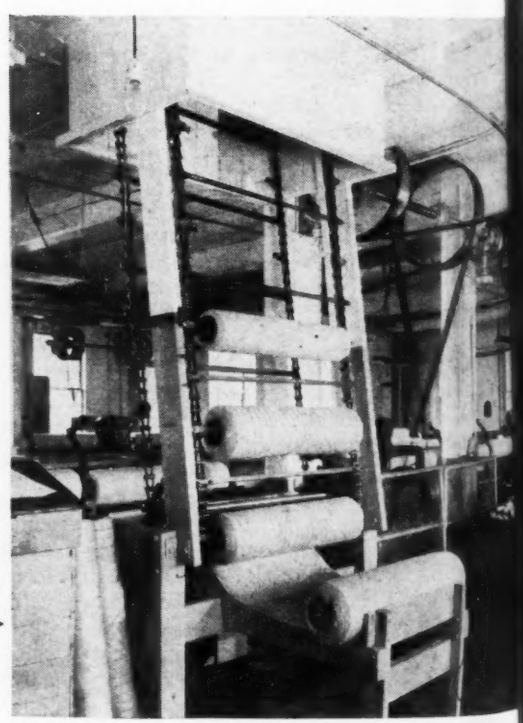
Woolen Mill Saves Labor With U



HIGHLIGHTS: *Carleton Woolen Co. solves problem of handling roving spools—Gravity conveyor delivers full spools to spinning room—Live elevator takes empty spools back to card room —Discharge is automatic; loading is manual.*

THE CARLETON WOOLEN CO., Rochdale, Mass., handled its roving spools between card room and spinning room by manual trucking and elevator for many years. Labor shortage and rising wage levels influenced the management to mechanize the transfer of these spools between departments, with a saving in handling costs and substantial reduction in percentage of spoiled work. The installation was made by the eastern division of the Chain Belt Co., at Springfield, Mass.

The Carleton management now feels that it should have mechanized its materials-handling system years ago, and is figuring on further improvements in



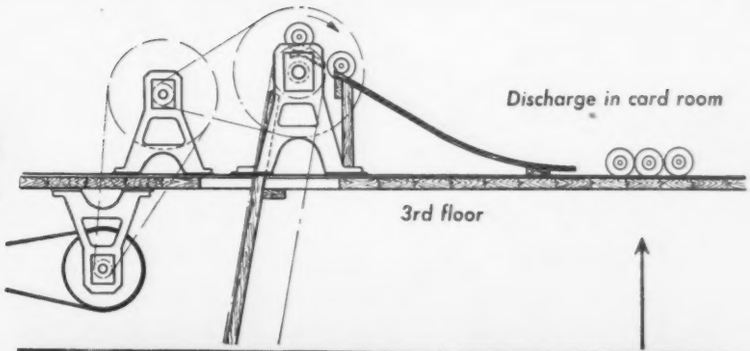
UNIQUE CONVEYOR

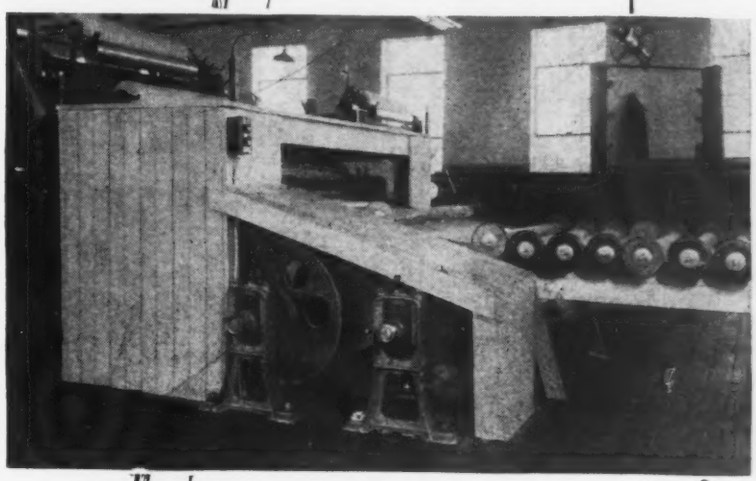
line with saving costs, adequate service between departments, and lessened damage to materials in transit.

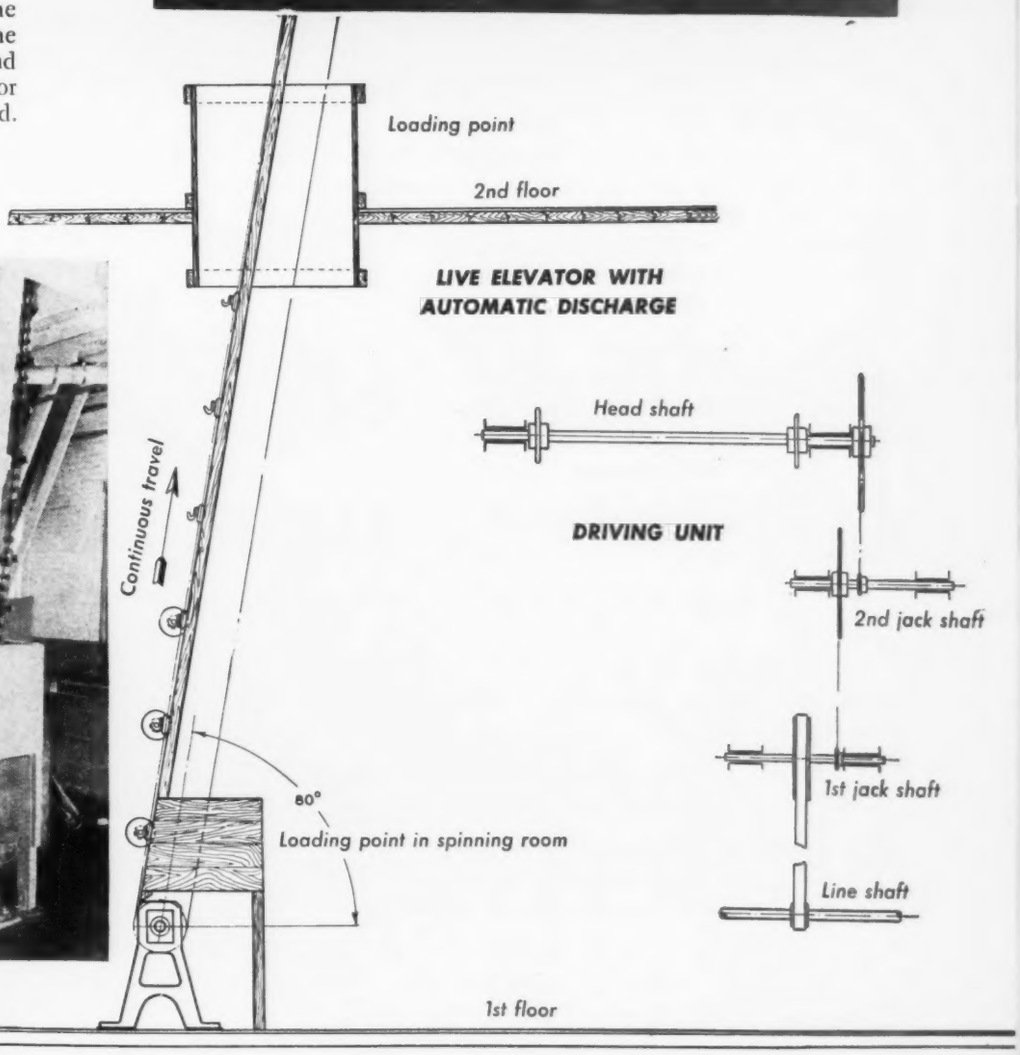
Illustrations herewith show the plan of the conveyors together with photographs of the loading and discharge points on the up and the down conveyor.

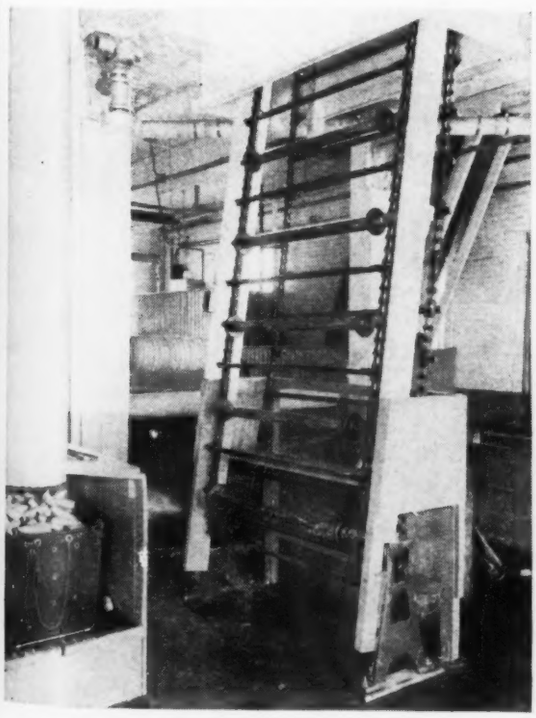
The carding room is on the third floor of the mill and spinning is done immediately below on the second and first floors.

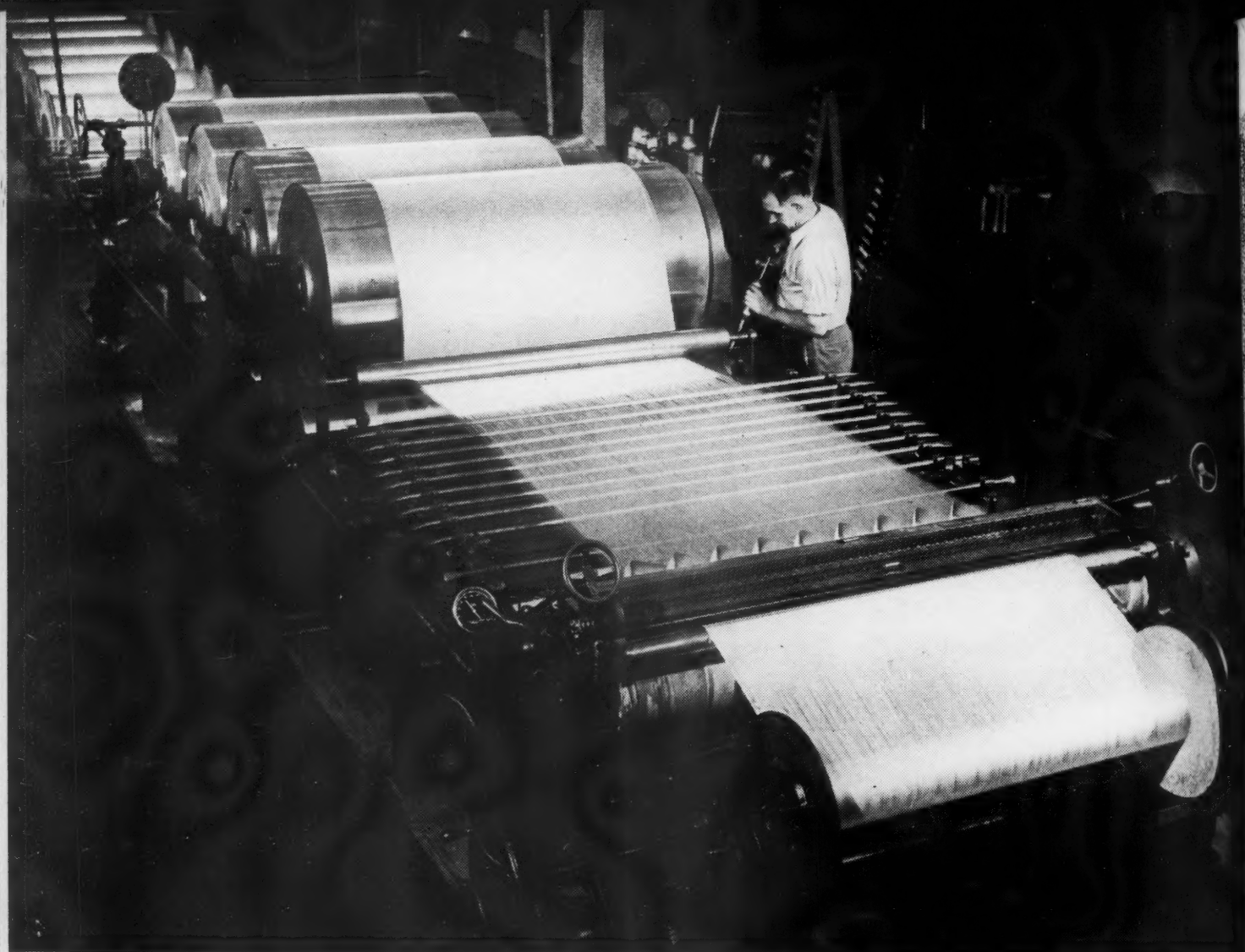
Loading of the conveyors is done by hand, the unloading is automatic. The conveyors use Rex Pintle chain with suitable attachments. Head and foot shafts are supported by anti-friction bearings, and a brake controls the gravity movement of the conveyor which can be operated from all three floors. The empty-spool return-conveyor from the spinning rooms on the first and second floors to the card room on the third floor is power operated at a slow speed. Power consumption is nominal.











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INDUSTRIAL PRODUCTS

Germans Trailed U. S. in THROWING and TWISTING

HIGHLIGHTS: *Rayon textile operations, although generally old fashioned, had some points of superiority—Two-for-one crepe throwing spindle and device for making heavy-pickage cloth uncovered—Beaming eliminated in silk-system warping—Triple-deck throwing machinery observed.*

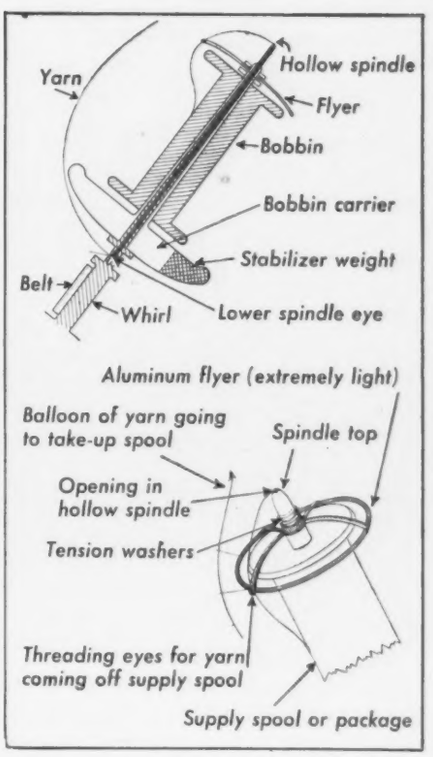
Ernest C. Geier, president of the Duplan Corp., who investigated German textile technology, told the American Association of Textile Technologists about his trip last month. Following is an abstract of his technical findings.

WINDING, warping, entering, and twisting departments in all the German textile plants visited used conventional or old-fashioned methods. Machine speeds were 10% to 40% less than in the United States, and many mills employed the silk system of warping. High-speed warpers were not used to the extent that they are in the United States.

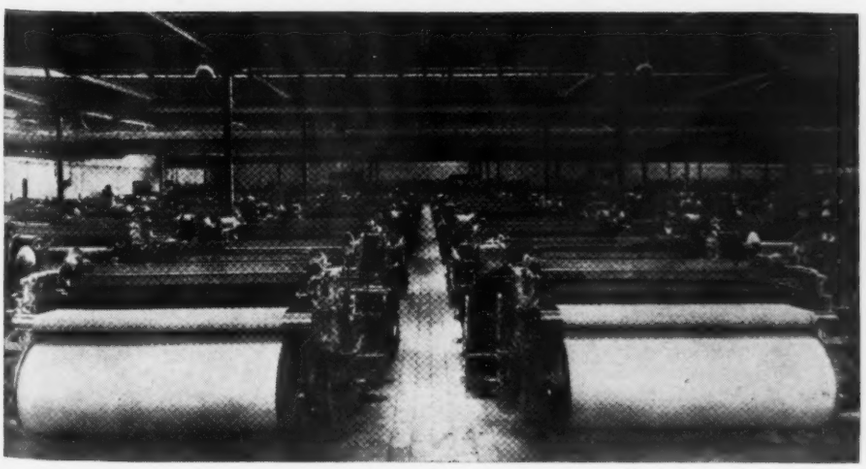
There is a good knotting machine in Germany; but it is no better than our American Barber-Colman, possibly not so good.

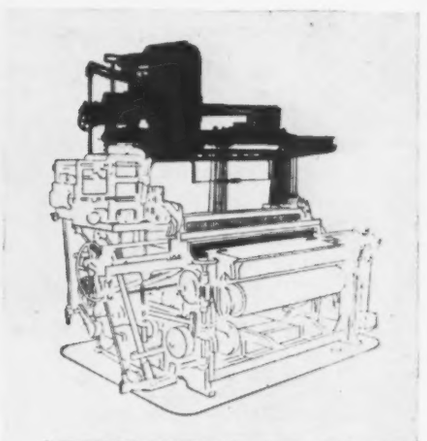
Slashing departments would definitely be considered old fashioned by us. There are a few 5-cylinder but no 7-cylinder slashers at all. Most of their slashing equipment is of the Zell type. The warp, after leaving the slashing pan, enters into a large hot-air chamber for drying. This method puts less strain on the yarn, and it does a good drying job, but it is much slower than our American operation.

Operators of one mill had worked out a short-cut in their warping department which is worth while explaining. They warp by the silk system and put the warp on a horizontal drum; but instead of beaming the warp from the drum, they lift the entire drum with the warp out of the warping machine by means of an overhead rail and place it directly behind their slasher, and start slashing. An extra or empty warping reel or drum is immediately lowered into the warping machine; and the operator, within a few minutes, starts another warp. This eliminates the beaming operation, which

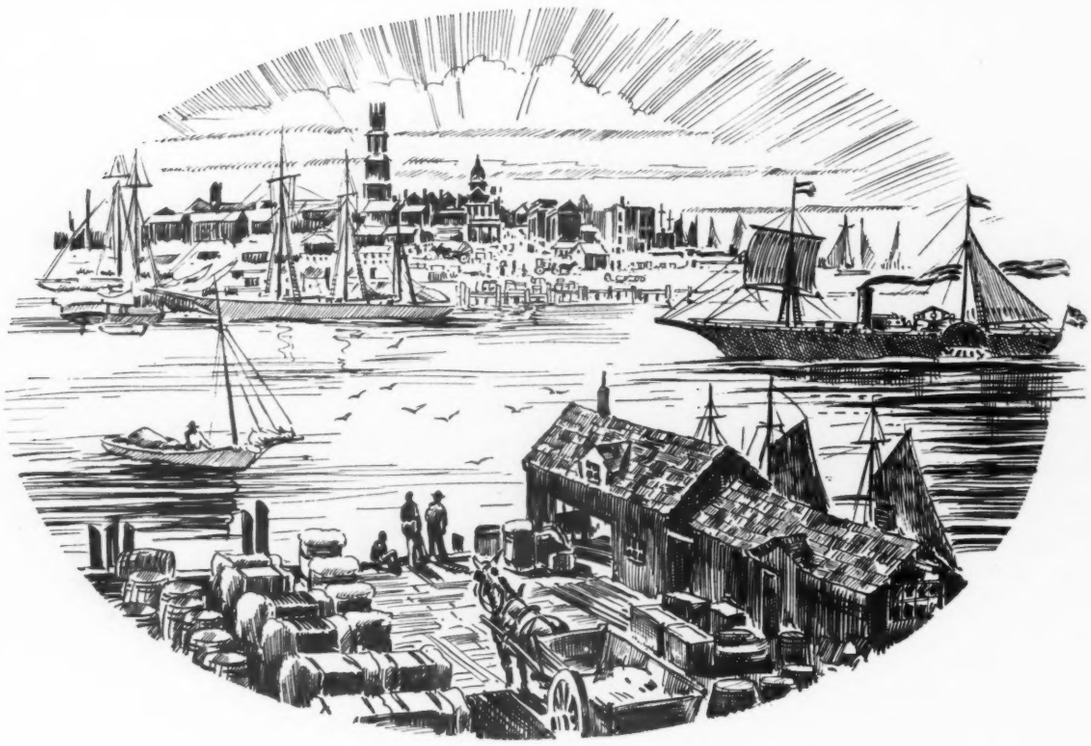


Flyer, tension device, and threading of two-for-one German crepe spindle is shown in drawing. Actual spindles may be sent to U. S.





Absence of overhead parts (see sketch at right) was reported as feature of Ruti looms found in Germany.



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means the warping machine is not tied up at all, and means almost double the actual warping production from one warping machine.

THROWING. Although preparatory operations in German rayon-weaving plants were rather conventional or old fashioned, the picture is quite different in German throwing mills. More headway has been made in throwing machinery than in any other type, and in some instances the Germans were just a little ahead of us.

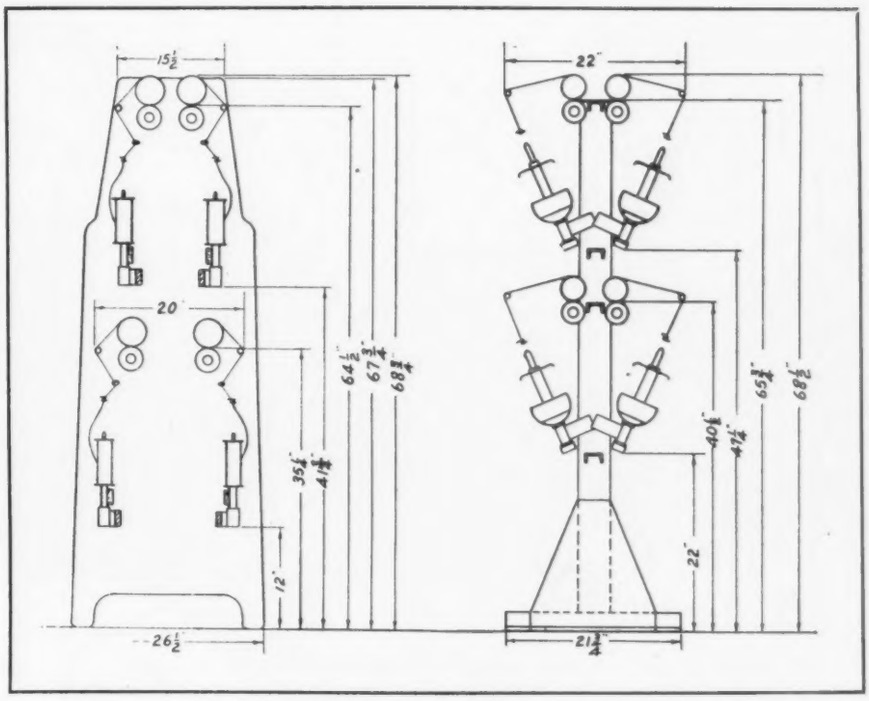
First of all, there is the Barmag double-twist spindle. (Not the one mentioned by Truslow and Jones in their reports for inserting low twist, to be used in rayon yarn-spinning plants.) It is a new crepe spindle for high twist which was actually developed during the war and has only recently reached the point where it is considered beyond the experimental stage.

No investigator so far had been shown this spindle; it also was obvious the Germans were trying to hide it. It was found in a sub-basement which during the war had been an air-raid shelter. There was one set of each of the double-twist spindles so far developed. (In addition, there was an experimental frame showing the very latest crepe spindle.) It was claimed that the blueprints of the new spindle had been destroyed in a fire caused by bombing. Since it was not possible to confiscate one of these spindles, proper measures were instituted so that at least one, and possibly two or four, of these spindles could be brought over here.

Generally speaking, German throwing machinery is well built, although it takes up considerably more floor space than does the American. The Germans have used headless parallel packages as a takeup device for as far back as in 1924; whereas, we here have insisted on the expensive bobbin takeup. In many cases, their takeup packages have been of 1-lb. capacity for a quite a few years.

Another development in up-twisters was a three-deck twister. There are quite a number of these machines running. Apparently they are producing good high-twist crepe yarn. A three-deck machine in place of a two-decker means a considerable saving in floor space. The machine did not give the impression of being crowded; however, it could be that American operators would object to the somewhat extremely low and high points of the machine which have to be served. Nevertheless, with ever-increasing machine building costs, this very economical three-deck machine merits attention.

In another throwing plant there was seen a rather interesting scheme where the Germans had converted a two-deck up-twister into a combination up-twister and doubler by using hollow spindles.



U. S. (left) and German up-twisters compared. Germans also had 3-deck models.

As to down-twisters, nothing new was discovered. They were all of the conventional type; and surprisingly, no mill had any synchronization of packages or spools between the doubling or down-twisting and the up-twisting departments. It is apparent that the German throwing mills lost a good deal of their advantages with up-to-date up-twisters by not trying the operation synchronously with the down-twister. In that respect, the United States is ahead of them.

WEAVING. Weaving equipment in Germany was by no means up to that of the United States. Automatic looms are found in comparatively few mills weaving rayon fabrics. Only two mills were found which were reported in pre-war days to have run as many as 30 looms per weaver on a plain four-shaft rayon fabric. There was little evidence of standardization in type of machinery. There were many plants, some not very large, in which there were three to five, or more, entirely different makes of looms. A phenomenon not encountered in America, is the fact that quite a few German weaving establishments, not necessarily large ones, at one time or another built their own looms. These home-made looms were not radically different from others, except for some small details or special gadgets, none very important. Obviously, the cost of such equipment must be high, and in the opinion of an American weaver, the advantages of such procedure are very doubtful. The automatic looms found were either of the Swiss Ruti type, or one of the three German types.

In the rayon-weaving industry around Krefeld, there were very few automatics of the Northrup, or Draper, type. So far as box looms are concerned, the automatics observed were all of the shuttle-change type, and in most cases they were old looms converted into automatics. The attachment mostly used for the conversion was the French Poncet patent, which can be adapted to almost any type of old loom. The Poncet follows the old American Stafford system; that is, the loom stops for about four picks while the shuttle change takes place.

KREUZWALKE. Reports that the Germans had produced a fabric with an abnormally high package led to the discovery of a loom attachment which made it possible. The device [*described in the Kinks and Short-Cuts department of this issue—Ed.*] made possible packages 8 to 12% above what would be considered normal and eliminated or reduced reed marks.

Although it is true that Americans have nothing to fear from the Germans, nevertheless much can be learned from them. Many of the ideas reported by the various technical teams visiting Germany can be worked out here, and if put through a proper process of "Americanization" can be beneficially applied to our industry.

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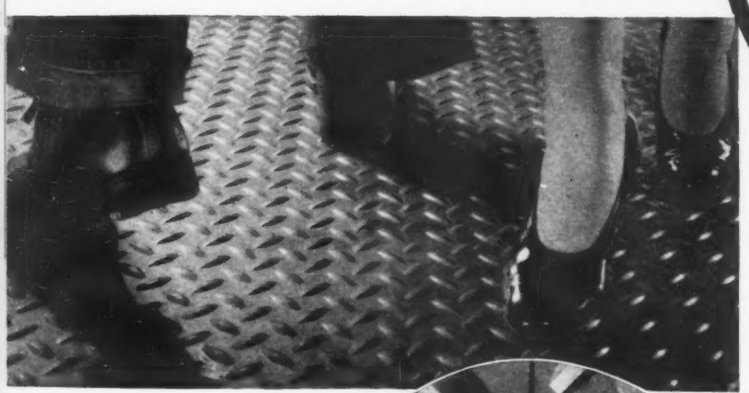

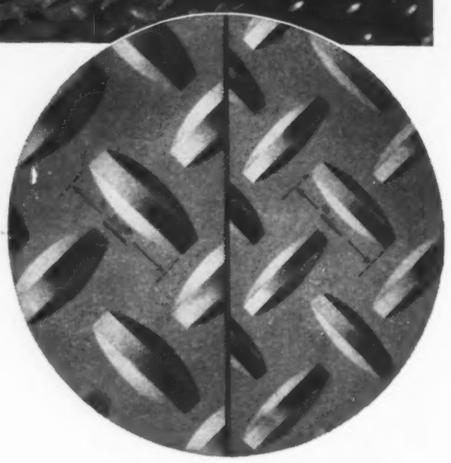

In stock at eleven Ryerson plants are the two pattern sizes shown at the right. Projections are 1 ¼" long on the large pattern and 1" long on the small. Other products in stock include: bars, structurals, plates, sheets, tubing, alloys, Allegheny Stainless, etc.

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RYERSON STEEL

ACTIVITY RECORDER

Charts Weaver Efficiency

HIGHLIGHTS: *Total loom stops, warp and filling stops, and stops from other causes shown by machine—Hathaway Mfg. Co., New Bedford, Mass., checks 20 looms simultaneously with one machine—Activity recorder gives graphic picture of operator efficiency.*

By C. S. PARSONS
Superintendent, Hathaway Mfg. Co.

THE TEXTILE INDUSTRY in general has not recognized the advantages of graphically obtaining data regarding machinery operations. There are four explanations for this failure:

1. Low costs of labor and machinery, compared with other industries;
2. In general, many productive units are run per machine operator;
3. Much engineering has been done by consultants, and the alternative installation of activity-recording equipment for limited observations is expensive;
4. Nature of textile machinery does not readily lend itself to adapting the recording instruments.

With increased manufacturing costs, the use of machine-activity recorders becomes of much greater importance than formerly. Wages have risen to new peaks and reduced costs must be realized through the more efficient use of manpower. Prices for machinery are also higher today, not only due to the increased cost of building the equipment, but also due to the higher speeds demanded which result in the necessity for better machining and closer tolerances.

APPLICATIONS. The use of recorders in studying weaving will serve as an illustration for this discussion. However, for mills that are not primarily interested in weaving, three of many other possible applications will be mentioned.

The following description will show methods for analysis of machinery operations that will assist in reducing production costs.

1. For cloth-finishing processes, the analysis of operation time will serve as a record of machinery utilization, and the uniformity of cycle times for control of quality.

2. Another example of an indirect installation is of the standard makes of regain controls which record the moisture remaining in the yarn after drying. When the sizing machine is stopped, the instrument registers zero. As a result, data are available for the frequency of machine stops, for time lost by the machine at the beginning of the work day, for cleaning, or for other reasons. In this operation, the machine investment and wages for labor are comparatively high and the machinery efficiency is low due to fixed set-up times.

3. Roving frames serve as an interesting example, since many mills are installing new long-draft machinery to reduce the number of operations. The chief causes of lost efficiency are: end breakage, doffing, and creeling. In conjunction with conventional time studies, graphic recorders assist in the analysis of roving-frame operations for frequency of occurrence and time spent by the oper-

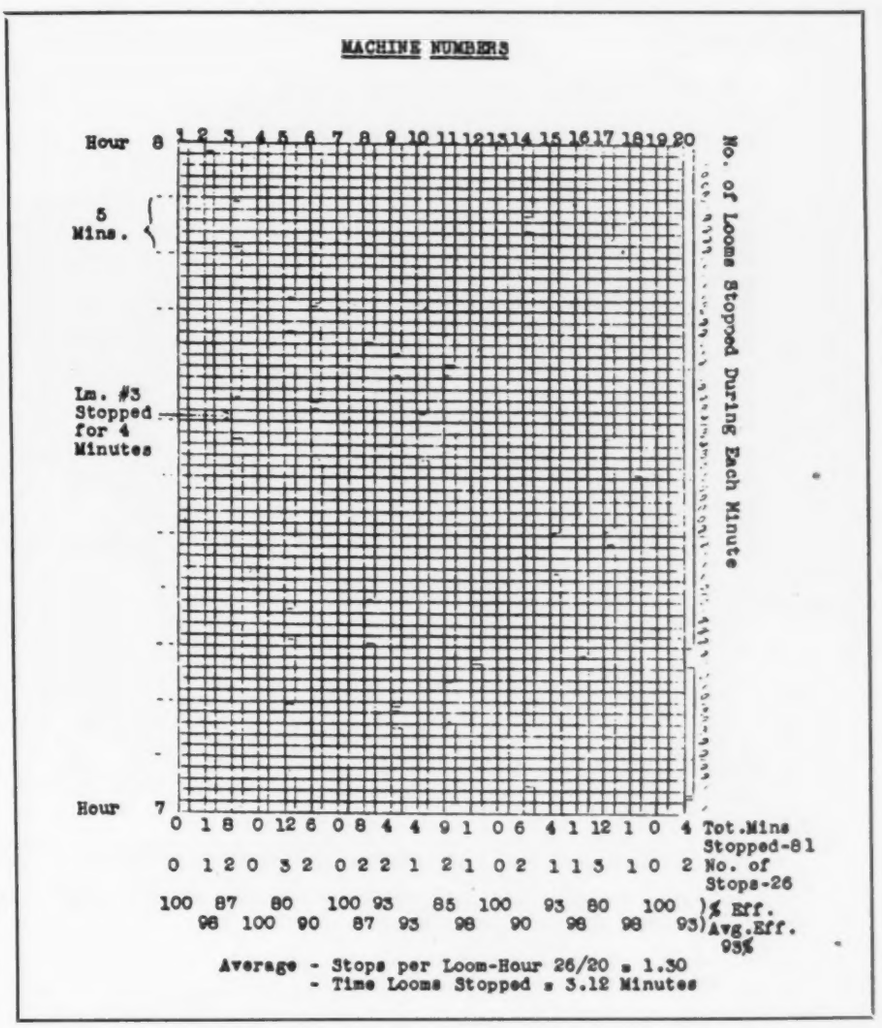
MACHINE NUMBERS
Hour 8
1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20
No. of Looms Stopped During Each Minute
5 Mins.
Lm. #3 Stopped for 4 Minutes
Hour 7
0 1 8 0 12 6 0 8 4 4 9 1 0 6 4 1 12 1 0 4 Tot. Mins Stopped-81
0 1 2 0 3 2 0 2 2 1 2 1 0 2 1 1 3 1 0 2 No. of Stops-26
100 87 80 100 93 85 100 93 80 100 % Eff.
98 100 90 87 93 98 90 98 98 93 Avg. Eff. 93%
Average - Stops per Loom-Hour 26/20 = 1.30
- Time Looms Stopped = 3.12 Minutes

Fig. 1. Each of 20 looms is represented by a vertical line, and each minute of operation is represented by a horizontal line.

Paper presented at annual meeting, American Society of Mechanical Engineers.

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949
IT'S EASY TO SEE WHEN IT'S
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Lighting

ator on the machine, as well as the time that the frame is not receiving the attention of the operator. This last down time includes the time when more than one of the tender's frames are stopped simultaneously.

Recording wattmeters may be used for obtaining data on one or more machines according to the electrical drive. However, their use is somewhat limited due to variable conditions in a group of machines and interpretation of average data.

Before considering the advantages of the use of instruments for loom studies, a brief description will be given of the design of recorders that are intended for machine activity only.

DESCRIPTION OF RECORDERS. There are two common types of recorders, and their selection will depend on the following factors: (a) Permanency of the installation of the machine or instrument, (b) Flexibility for use on other machines, (c) Accuracy with which charts can be read, (d) Ease in comparison of records from various machines to be studied, (e) Availability of charts during study, (f) Original cost of recorders per machine to be studied, (g) Installation cost of instruments, and (h) Maintenance costs of charts.

For simplicity, the two types for looms will be identified as mechanical and electrical.

The mechanical type is clamped or bolted to the loom, and any mechanical motion that will move or swing the pendulum located within the device will also move the stylus and make a record on the chart. In use, the recorder case is closed so that the stylus marks the chart only during the time when the pendulum is put in motion by the working activity of the machinery to which the recorder has been attached. The circular charts used on this device are 4 in. or 6 in. in diameter and are designed for one, three, or seven days' operation.

The electrical type is manufactured by at least two different companies. It is beyond the present purposes to make comparisons of the differences in design. The following description will be limited, therefore, to one maker's design. This particular instrument is built for blocks of 20 machines and records their production on a continuous-running chart, with the records of each machine spaced about ¼ in.

The electrical type may have a mechanical-clock mechanism, but the operation of the machine is transmitted to the recorder by means of an electrical switch connected to the shipper mechanism or electronic equipment. When the productive machine is in operation, an electromagnet raises the pen about 1/10 in. above the base line. When the machine is stopped, the electric current stops; and the pen returns to its normal position. The chart is fed through the machine so that previously printed horizontal lines, spaced 1/10 in. apart, normally designate one or two minutes, according to the type selected.

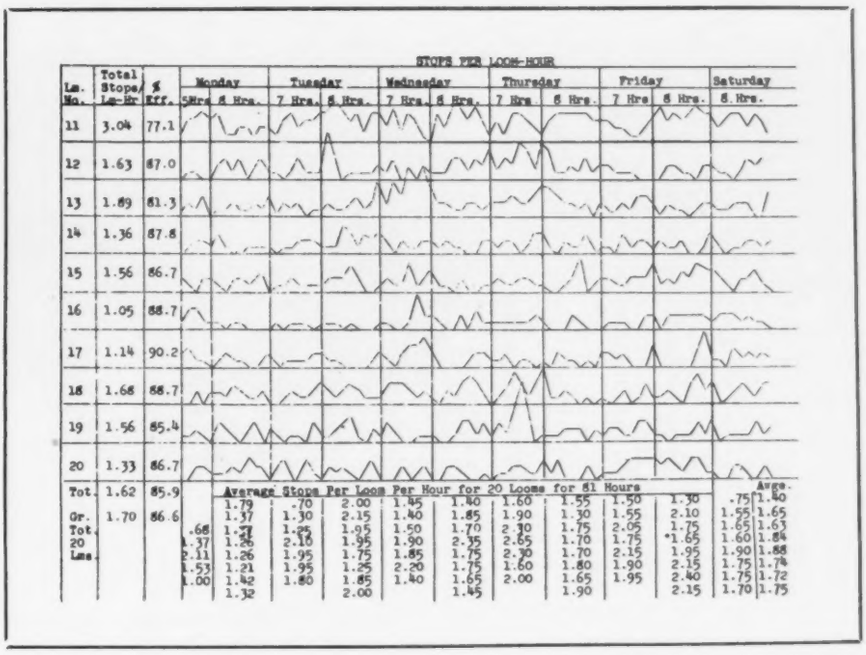

Fig. 2. Data obtained from 10 looms operating 81 hr. formed the basis for this analysis.

APPLIED TO LOOM. On a loom with an electrical stop motion, the current is shut off when the loom stops. This switch is then used for operating the pen of the recorder for indicating the stoppage for all causes. However, it is possible to cut into the wiring of the electrical stop motion and indicate on another pen the warp stoppage.

A device could be arranged so that the filling-detector mechanism would actuate a third pen. Thus, on one-third the number of looms as might be otherwise studied, an analysis could be made of total stoppage, filling and warp stoppage, and by deduction, all other causes. The records would then conform with current practice of observing three major classifications of loom stoppage.

One of the first impressions obtained in observing a chart, such as Fig. 1, is the great variation from loom to loom, even on the same cloth construction. This variation is readily apparent to

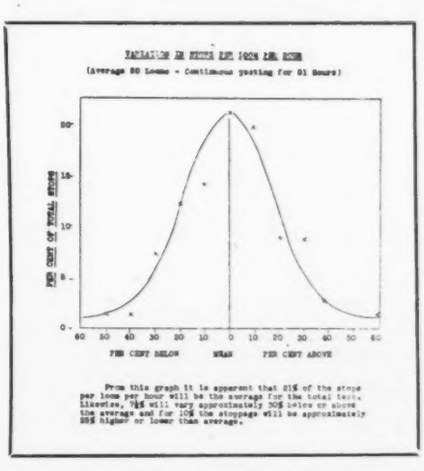
VARIATION IN STOPS PER LOOM PER HOUR
(Average 80 Looms - Continuous testing for 81 Hours)
PER CENT OF TOTAL STOPS
PER CENT BELOW
MEAN
PER CENT ABOVE

Fig. 3. Twenty-one percent of the stops per loom per hour will be of average duration, as indicated here by the highest point of the curve.

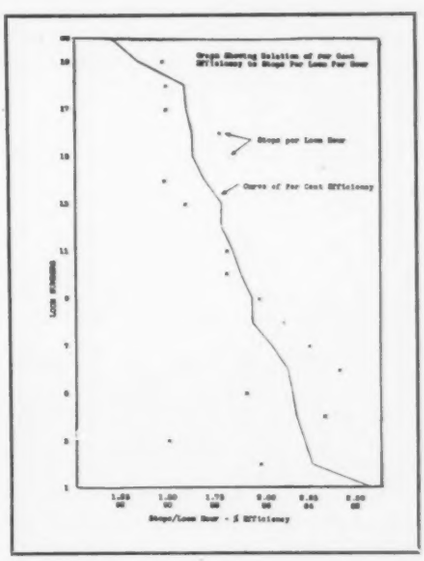
Graph Showing Relation of Per Cent Efficiency to Stops Per Loom Per Hour
Stops per Loom Hour
Curve of Per Cent Efficiency
Loom Numbers
Stops/Loom Hour - % Efficiency

Fig. 4. The relation of percent efficiency to the stops per loom per hour is shown on the above graph.

cutting bacterial action in cutting oils

How Dowicides Control Microorganisms.

Metal working is one of many manufacturing processes which benefits from using Dowicides to control destructive bacteria.

Sulphur-digesting bacteria attack cutting oils and emulsions used in machining operations because the oils themselves may be sulphonated or stock being cut or ground may contain sulphur. The acidic by-products of the bacteria lower the pH of the emulsions, which results in the separation of the oil and water phases.

Widespread industrial experience has proved that Dowicides prevent bacterial destruction of cutting oils. Dowicides are produced in oil soluble and water soluble forms, so they may be used either in undiluted oils or emulsions.

Dow will help you select a Dowicide to meet specific needs—to control bacteria in cutting oils or to eliminate damage from microorganisms in any industry. Consult any Dow sales office—today!

DOWICIDE

germicides and fungicides

control termites mold and bacteria

DOWICIDES IN THE TEXTILE INDUSTRY

Dowicides are widely used in the textile industry to protect sizing solutions from bacterial attack. They not only prevent decomposition of the solutions but also protect the sized yarn during storage. Dowicides also are used as components of saturating materials to protect electrical cable wrappings from decay. Throwing oils used in silk and rayon production are protected by Dowicides to prevent molding and consequent loss in tensile strength of stored yarns.

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CHEMICALS INDISPENSABLE TO INDUSTRY AND AGRICULTURE

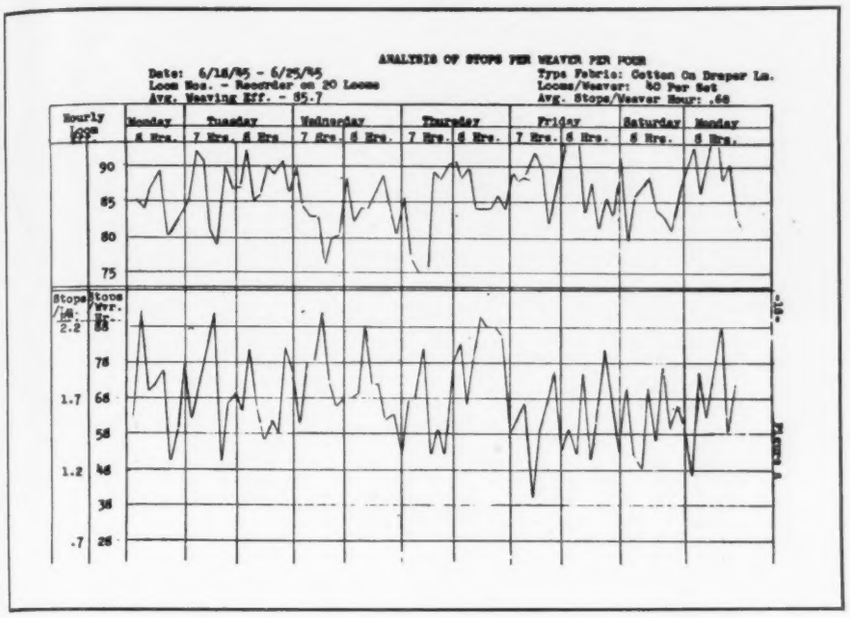


Fig. 5. Twenty looms operating two shifts for one week were used in obtaining this analysis of the stops per weaver per hour.

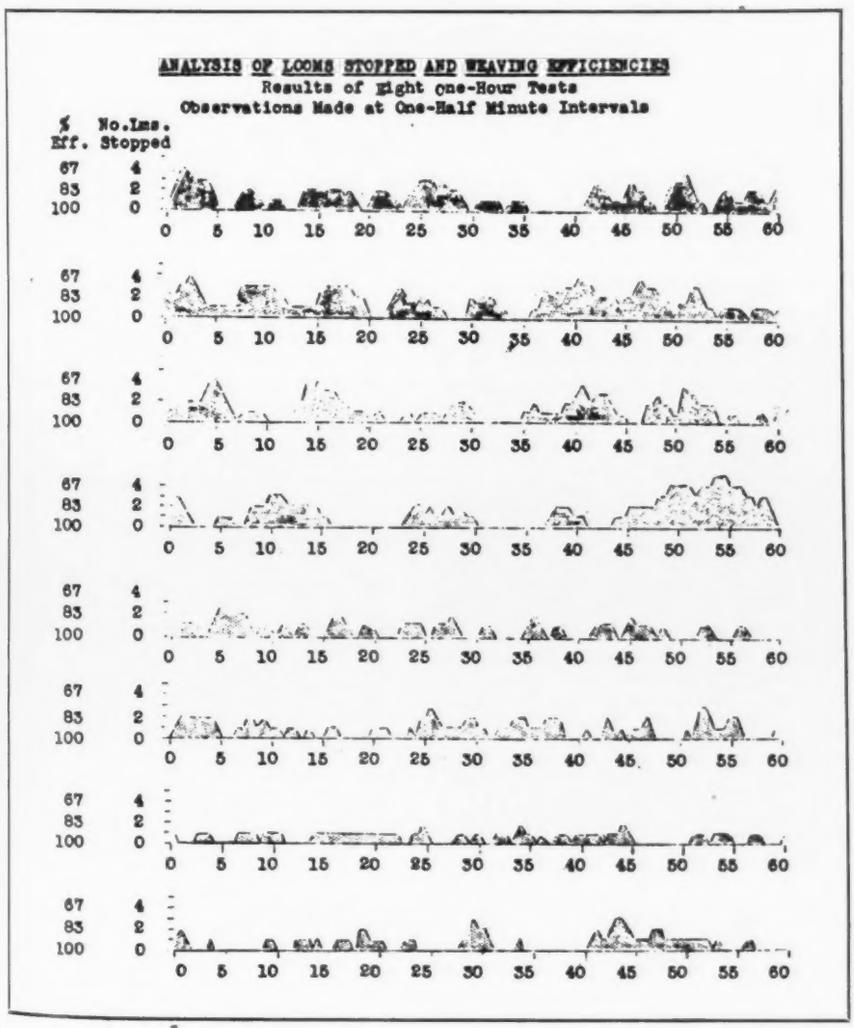


Fig. 6. The effect of the weaver on loom production is shown here from data obtained by the recorder and by conventional time studies.

those who are not acquainted with time-study analysis. The activity of the looms is more effectively shown by graphs than by figures, as is true of graphic presentation of such data.

Some engineers record operations in the sequence of their occurrence, which requires considerable clerical work in the summation of the data to follow the activity of any one particular machine. In contrast, some time-study observers record their findings directly according to the machine, irrespective of actual sequence. As a result, in a 4-hr. study considerable trouble may occur in a brief period—for example, in ½ hr.—and for the remaining 3½ hr. of the test the performance might be normal. Such instances are clearly seen by the use of graphic recorders.

Further examination of Fig. 1 shows that the machine numbers are across the line at the top of the chart. One hour has been taken to illustrate this chart. There are 60 horizontal lines with 12 heavy lines representing 5-min. intervals, as shown on the extreme left-hand margin. It will be seen that loom No. 3 was stopped for 4 min. from 7:33 to 7:37.

Beneath the chart are the total stops for each loom for the hour and the total number of minutes stopped. The efficiency of each loom can be readily calculated from the minutes of lost production.

By adding across each minute line, as shown on the right-hand column, data may be obtained on the number of looms stopped during each minute.

DATA OBTAINED. This 20-pen machine-activity recorder makes graphic records of the production of 20 machines at one time. By suitable elec-

(*Continued on page 209*)

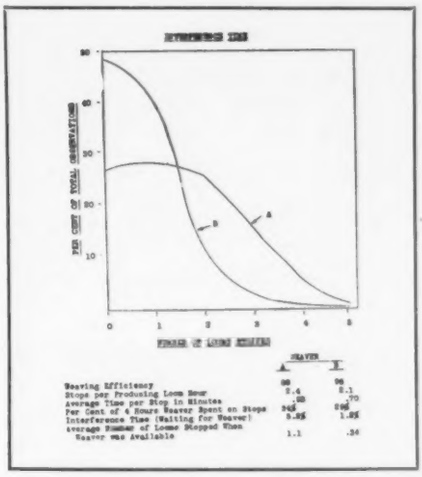
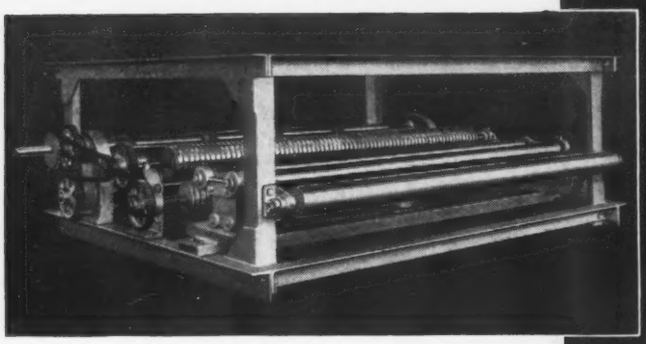
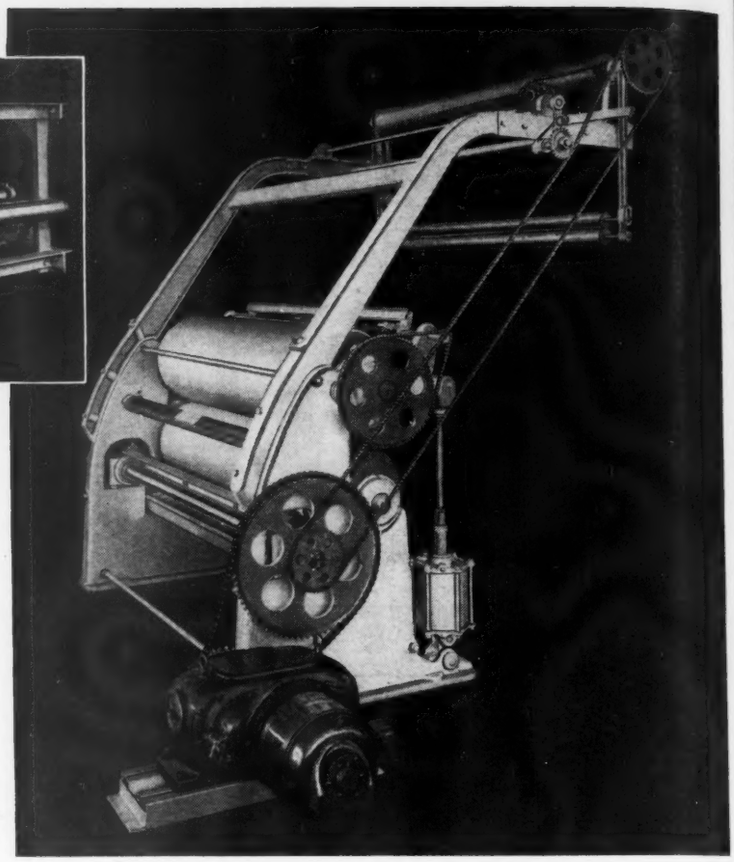


Fig. 7. The tests in Fig. 6 are summarized here to contrast the efficiency of weavers A and B.





How to CONTINUOUSLY OPEN AND EXTRACT CLOTH AT ANY REQUIRED PRODUCTION RATE

Pictured on this page are the new Hunter contributions to faster and continuous cloth opening and extracting—at any required speed and with a high percentage of moisture removed. With the Hunter Ceiling Scutcher and Hunter Model G Pneumatic Squeeze Rolls and variable speed control, the opening and extracting operation is continuous—with one man's labor, with only 7½ H.P.—and with extraction down to 50% to 60% on the bone-dry basis.

The Hunter Scutcher and Model G Pneumatic Squeeze Rolls may also be put into a continuous range with the new Hunter Tenter or Carbonizing Dryers, which affords the mill continuous flow from the washers to the drying operation.

The fact that in a few years, American mills have invested over half a million dollars in Hunter Pneumatically Operated Squeeze Rolls, should encourage mills now using other methods of cloth extraction to investigate the savings possible for them. You are cordially invited to write to James Hunter Machine Company for more complete details.

JAMES HUNTER MACHINE CO.
NORTH ADAMS, MASSACHUSETTS, U.S.A.
FOUNDED 1847

China Is Serious About Developing Its TEXTILE INDUSTRY

HIGHLIGHTS: *Goal is to replace Japan in the world textile picture—China not only plans to build up its textile production but to magnify its raw silk output to exceed Japan's—Will push domestic textile machinery manufacture.*

By HERBERT LEOPOLD, *China Bureau, McGraw-Hill World News*

THE CHINESE GOVERNMENT is putting on a concentrated drive to capture Japan's worldwide prewar textile market. Through subsidies, government operation of mills, and special financial concessions to the textile industry, China is hoping to snare the lion's share of Nippon's $300,000,000-a-year business.

In the first official disclosure of Chinese plans, Dr. T. V. Soong, president of the Executive Yuan (premier), said that China hopes to displace Japan in the world silk market—on the assumption that demand for natural silk is still considerable. The over-all plan also includes the expansion of cotton mills through domestic manufacture of equipment.

Through the China Textile Development Co., Dr. Soong said, the government plans to take over the operation of former Japanese textile plants in China, which include about 1,750,000 cotton spindles. The domestic manufacturing plans call for the turning out of 250,000 spindles and 6,000 looms a year. Already the Shanghai Hung Ting Cotton Mill Co. has purchased 27,000 spindles and 500 looms at a reported cost of $500,000 from a mill in Meridian, Miss. Shipment to China will be made within three months.

ECONOMIC BACKING. The textile industry will enjoy the full economic backing of China's shipping, banking, and insurance concerns, Dr. Soong reported. To meet the needs of the expanding textile market, China plans to build up her merchant marine until it rivals in size the prewar Japanese N.Y.K. ocean transport system. As a starter, an order for 16 ships has been placed in the Philippines, and 10 more in the U. S. Shipping operations will be monopolized by a Chinese state concern.

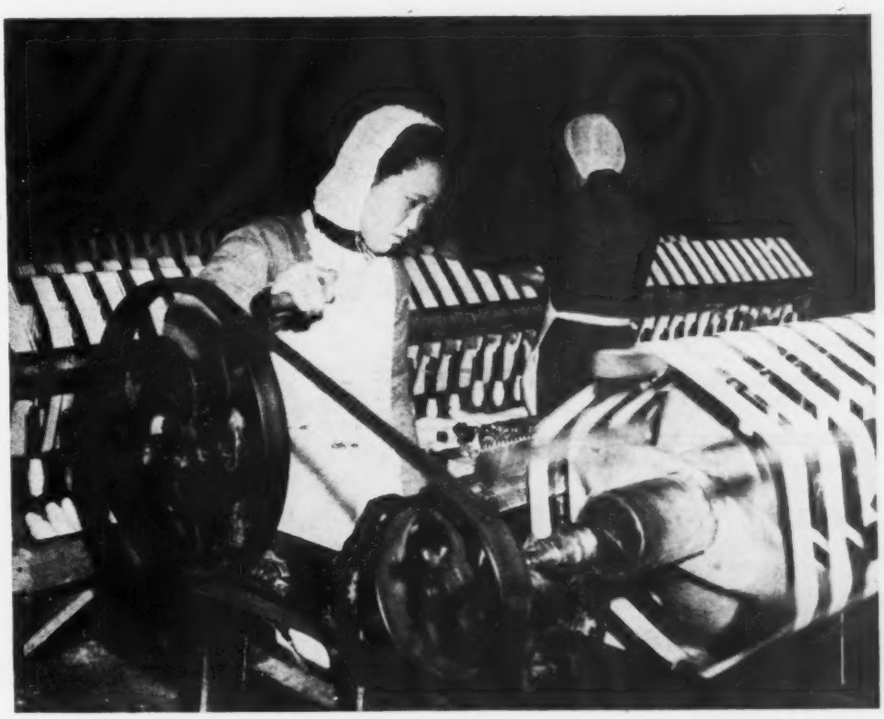
In the coming market race, China enjoys one distinct advantage over Japan in that retail distribution channels in the Philippines, Siam, the Netherlands East Indies, French Indo-China, and Malaya, are largely controlled by Chinese merchants—while Japan's far-flung net of sales agencies has been torn up through the seizure of Japanese properties and the breaking up of the "zaibatsu" organizations which controlled these agencies.

On the other hand, foreign traders with experience in the Far Eastern textile field are a bit dubious whether China can produce 250,000 spindles and 6,000 looms a year soon enough to keep pace with Japanese textile rehabilitation. Present facilities—which include three Jap factories—can, at best, turn out only crude and obsolete models of 10,000 spindles and a few hundred looms a year.

Plans are under way, however, to establish six textile-machinery plants at China's four principal cotton-growing centers. Meanwhile, sources close to the government report that, as a temporary expedient, 2,500,000 spindles will be purchased abroad.

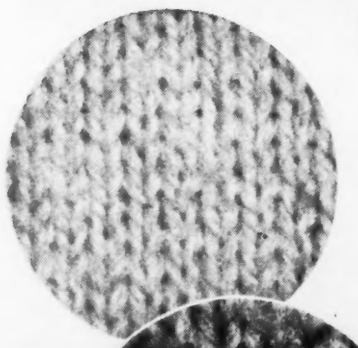
With most textile mills in Japan demolished during the war to feed the tottering empire's scrap-starved steel furnaces, China now has approximately the same number of spindles which Japan saved through the surrender—

(*Continued on page 226*)

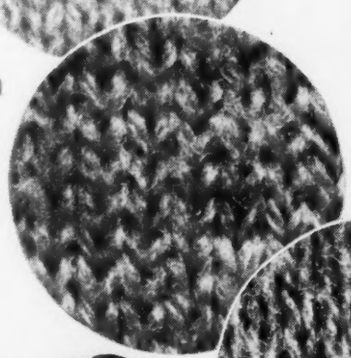


Chinese girl operating reel by hand.

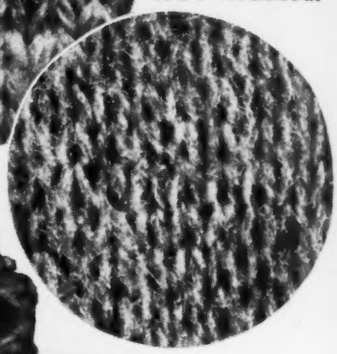
You can attain this SOFTER FABRIC in LEIGHTON-KNIT SWEATERS



BRUSHED *and* WASHED



Washed but NOT Brushed.



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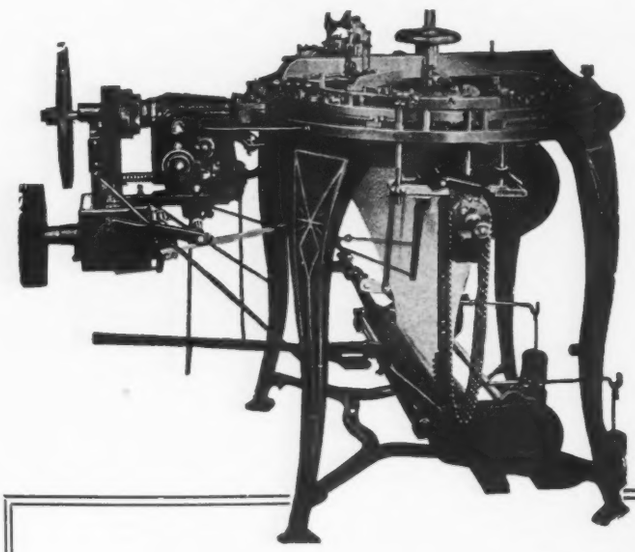


This ultra-soft fabric now produced by LEIGHTON Knitting Machines, is the result of two steps taken during and after knitting.

First, you equip your LEIGHTON Machine for brushing—a change easily made because the face of the fabric on Leighton Machines is always on *the outside*, facing the operator.

Then—you simply *wash* the fabric. For comparison, look at the sweater fabrics shown in the circles above. Ask about this new development. Write for full information on producing LEIGHTON Ultra-Soft sweater fabrics.

LEIGHTON MACHINE COMPANY

ESTABLISHED—1873

LEIGHTON

MANCHESTER NEW HAMPSHIRE

INCORPORATED—1894

CARD-FLY SEPARATOR
Developed by Mill Man

HIGHLIGHTS: *Card-fly separator recovers spinnable fiber from lickerin motes—Waste formerly sold for 4½c per lb. now made into low-strength yarn—Better cleaning, less stripping reported by mills after installation of separator.*

By C. MALLARD BOWDEN
Southern Editor, TEXTILE WORLD

SEPERATION of lickerin-fly waste from motes, resulting in the recovery of spinnable fiber from waste previously sold at low prices, is being accomplished by cotton mills through the use of a fly separator observed in one large Southern mill which installed several hundred of them. The mill reports that better cleaning and less stripping are among the advantages obtained from their use. Pneumatic hose pipes are used to remove the separated fly from underneath the card, and the fly is later blended with regular stock for low-strength products such as sheetings and osnaburgs.

With current prices for motes estimated at around 4½¢ per lb., the separation of the fly enables the mills to save the difference between 4½¢ per lb. and the price of the regular product. Reblending the separated waste with regular stock is facilitated by the presence of the natural curl in the cotton fly. The retention of this curl is possible because of the minimum processing the stock has received, as contrasted to the processing received by waste removed from roving and combing processes. The body of the fly, however, is weak and of course cannot be blended into stock for high-strength products.

The separator was invented and patented by Glenn R. Hooper, superintendent, Frieda Mfg. Co., Kings Moun-

Fig. 1. With lickerin removed, the top of the separator can be seen in tandem with the rib-type screen. Note the extra mote knife and the two additional blades said to be responsible for the additional cleaning.

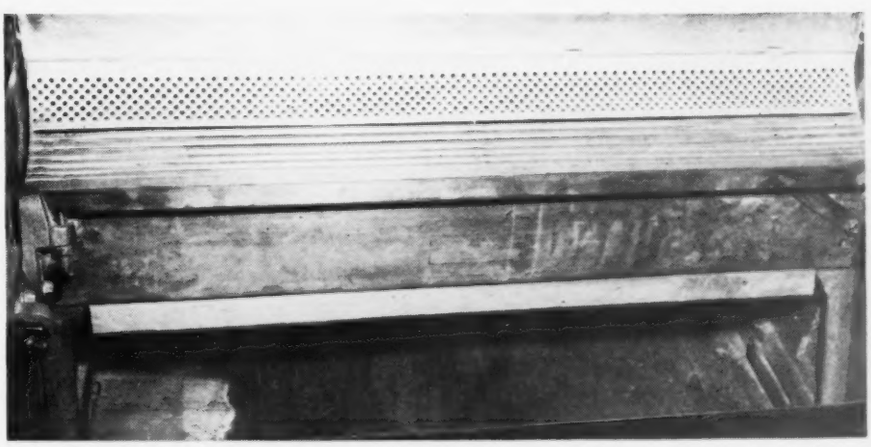
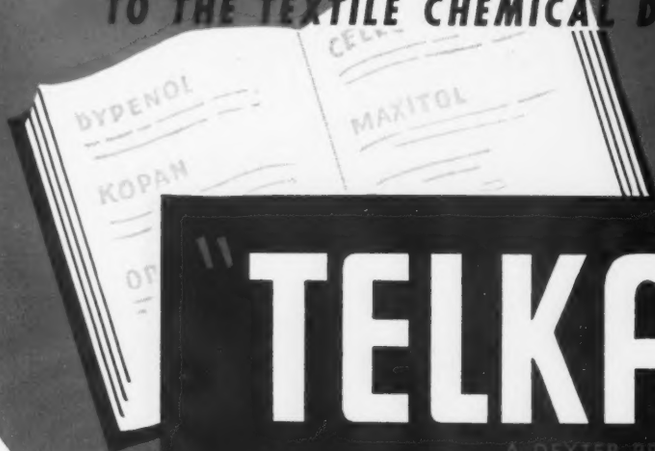


Fig. 2. With mote knives removed, a portion of the separator is visible. Note the division of pits and the hinged door. Fly waste falls into the front section and motes into the rear.

Dexter... ADDS A NEW WORD
TO THE TEXTILE CHEMICAL DICTIONARY...



"TELKANOL"
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A 3-WAY ASSISTANT IN WOOL DYEING

TELKANOL can be applied to advantage for a multitude of purposes in the dyeing of wool and unions. It is distinguished by stability towards all kinds of chemicals used in wool processing, and may be used in preliminary treatment, in dyeing or in after-treatment.

1 DETERGENT
Telkanol has a strong dispersing effect on grease and other impurities in the goods.

2 LEVELLING AGENT
Telkanol assists solubility of dyestuffs — assuring even, clear shades.

3 PROTECTIVE AGENT
Telkanol provides improved fastness to rubbing. Prevents precipitations of direct dyestuffs sensitive to lime.

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Tell us in detail about your wool-dyeing problems. Our technical staff will study them and make specific recommendations. There is no obligation.

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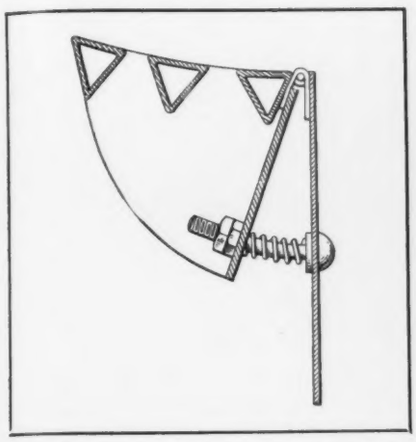

Fig. 3. A sectional view of the V-shaped back section of the separator. The adjustable bolt-and-spring attachment controls the amount of fly removed.

Fig. 4. The operator removes the fly with a pneumatic hose which conveys the waste to the picker room for blending.

tain, N. C. Installations were made just prior to the war in several large Southern and Eastern cotton mills, but further production of the separators was prevented during the war by the shortage of materials.

SEPARATOR'S FUNCTION. A card equipped with the separator is shown in Fig. 1, with feed roll, plate, lickerin, and other parts removed. To the right of the perforated screen is the rib screen used with the separator. The separator begins with the two vertical blades connected to the back section of the separator screen. To the right of the blades is an additional mote knife commonly installed with the separator to afford extra cleaning.

Between the two blades and the extra mote knife there is a small space to permit heavy materials to fall into the pit below. A considerably larger space has been provided for the passage of foreign material between the extra mote knife and the two convential knives. Thus when motes fall, they are collected in the back section of the pit.

Because of the draft caused by the rapid rotation of the card lickerin and cylinder, the fly waste is carried beyond the openings between the mote knives. It is thrown through the openings in the rib screen and falls into the front section of the pit below.

Beneath the two blades is a large hinged door, Fig. 2, which separates the pit. The motes are collected in the rear section, and the fly is dropped into the front section.

Above the door is an adjustable, hinged back section of the separator screen, Fig. 3. This section is V-shaped and can be narrowed or widened at the base by adjusting the bolt-and-spring arrangement.

CONTROL OF FLY. The result of the adjustment afforded by the bolt and spring were said to be twofold. First, the area affected by the action of the lickerin and the draft of air which carries the fly can be increased or decreased to control the amount of fly taken out. Second, the application of additional weight upon this section of the separator, such as would occur should heavy mats of foreign matter come between the lickerin and back section, would cause the spring to contract and the gap to widen. Thus, heavy foreign materials or mats of sudden concentration would drop harmlessly into the back section of the pit. It was stated by mill men that this arrangement protects the separator from possible injury and prevents the passage of mats to the card cylinder.

The method for removing the waste from the pit is shown in Fig. 4. In the large mill in which the photograph was taken, the pneumatic hose is used to withdraw the fly and transport it to the picker room. In the picker room, the fly is thrown into the waste machine and blended into the regular stock.

The process of removing the waste follows. The motes are removed from the back section of the pit. The hinged door is then drawn down over the mote section to permit the removal of the clean fly without contact with the motes.

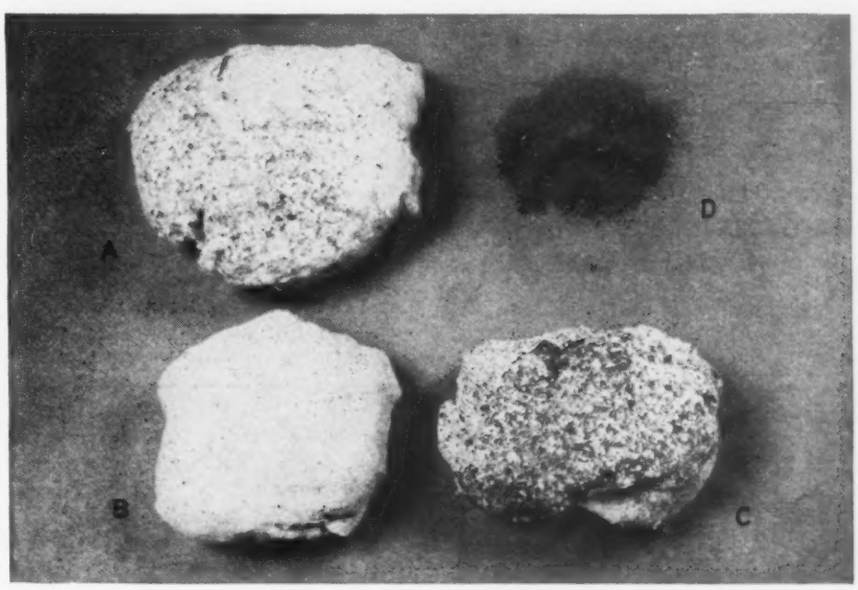

Fig. 5. Fly taken from a card not equipped with the card-fly separator is shown at A. Composites of similar fly separated by the attachment are: B, recovered spinnable fiber; C, motes; D, dirt and pulverized motes. Most of the specks appearing on B were accumulated during handling for photographing.

RAYON REPORTS

Prepared by American Viscose Corporation, New York, N. Y. APRIL, 1946

RAYON . . . 20 YEARS AGO

American-made rayon fabrics are being featured in a Philadelphia exhibit. Visitors on every hand are saying, "Rayon is here to stay!"

Processors are advertising that rayon on spools, tubes, cones, cops or bobbins is available within 48 hours after receipt of orders.

Rayon is the "center of attention" in Boston where the International Textile Exposition is displaying new rayon machinery and processing procedures.

AVC PLAN WILL REWARD WORKERS FOR ADOPTED IDEAS

A company-wide Proposal Plan just announced by AVC will reward employees with payments up to $2,500 for adopted suggestions or ideas that will improve production methods and operations. A comprehensive booklet explains to AVC employees the eligibility requirements and general instructions. A motion picture and posters will aid in spreading the rules.

WOMAN'S CLUB SERVICE BUREAU ACTIVITIES INCREASE 142%

During 1945, 5,135 woman's clubs were added to the roster of organizations requesting copies of programs from The Woman's Club Service Bureau—a rayon information and club-program service sponsored by American Viscose Corporation in the interest of rayon. The total of clubs which requested copies of all the bureau's programs reached 8,735, as against 3,600 during 1944, an increase of 142%. Many social service and educational agencies also make use of the rayon sewing and wardrobe guides of the bureau.

4½ MILLION "CROWN" TESTED TAGS ISSUED IN FIRST QUARTER, 1946

During the first quarter of 1946, more than 7,000 fabric samples were submitted for test under American Viscose Corporation's CROWN Tested Plan.

This establishes a new high for a quarterly period and indicates an increase in the evaluation of the plan by converters and manufacturers.

More than 4,500,000 CROWN Tested tags, issued during this period, will help the public to identify garments made of fabrics which meet the CROWN Tested requirements. Among the fabrics which will benefit by this are:

Wm. Basser's—"Bas-o-lin," an all spun rayon fabric, finished by Shamokin Dye and Print Works, hand washable, women's dresses.

Brand & Oppenheimer's—"Airflow," an all spun rayon fabric, finished by Shamokin Dye and Print Works, hand washable, women's dresses.

Carnac's—"Carna-Libre," a blend of 70% viscose rayon and 30% Acetate rayon, dyed and finished by North Carolina Fabrics Corp., "Green Light" (washable) for men's shirts and women's sportswear.

E. Milius & Company's—"Coronet Jacquards," a 100% viscose rayon shirting fabric, dyed and finished by Sayles Finishing Co., to American Viscose Corporation's "Green Light" requirements.

Lesem Bach's—"Filipino," a 100% Rayon Fuji, dyed and finished by Kenyon Finishing Company at Lawrence, Mass., a "Green Light" (washable) fabric for shirts. Also their "Monte Cristo," an 80% viscose rayon and 20% wool blend for wet cleanable men's and women's sportswear and suiting. Dyed and finished by Maupai Dyeing & Finishing Co.

Riordan Fabrics's—"Rio Belle," a 100% spun rayon fabric, printed and finished by Lawrence Print Works, to meet "Green Light" (washable) requirements. It is used for children's washable dresses.

Holmes & Zucker's—"Loomshire," an all-spun viscose rayon fabric, finished by Raytex Dyers & Printers, Inc. An "Amber Light" (hand washable) fabric for women's dresses.

Schwarzenbach, Huber's—"Darbrook," a sheer, part-filament, part-spun viscose rayon fabric, printed by Allied Textile Printers. An "Amber Light" (hand washable) fabric for women's dresses.

Blossom Fabrics Corp.'s—"Blossom Fabrics" all-spun viscose rayon fabric, printed by Allied Textile Printers. An "Amber Light" (hand washable) fabric for women's dresses.

One of the many full-scale machines at AVC Textile Research Department's unique experimental plant at Marcus Hook, Pa. A 600-end creel is shown being used to make tricot warps. A 1000-magazine creel for making section beams for weaving may be seen in the background. Research into nearly every operation in the textile industry can be performed with the plant's extensive equipment.

ADV.

MAKE USE OF 4-PLY SERVICE

1 PRODUCT RESEARCH
Helps you get the right yarn or fiber.

2 FABRIC DEVELOPMENT
Helps you design new fabrics.

3 TEXTILE RESEARCH
Helps solve production and finishing problems.

4 "CROWN*" TESTED
Helps provide scientific selling facts.

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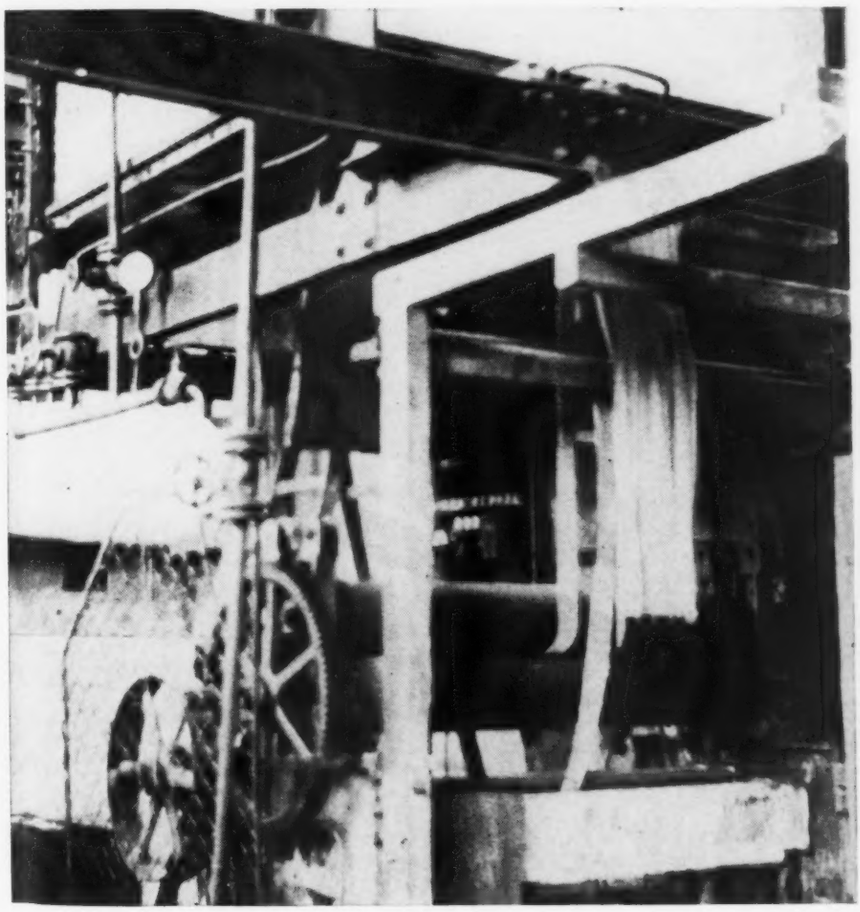
CROWN TESTED RAYON FABRIC

*Reg. U. S. Pat. Off.

German DYEING and FINISHING Are Below U. S. Standards

HIGHLIGHTS: *U. S. textile team observes complicated techniques, slow operation, and lack of simple control methods—Much useless handling of goods —Dyers use principally fast colors, but do little with continuous process because runs are very short—Kettles and becks smaller than U. S.—Few kiers used—Pigment dyeing only at laboratory stage—Vat-acid method highly developed.*

By C. NORRIS RABOLD
Consulting Editor, TEXTILE WORLD, and Member of Textile Mission to Germany



Reduction pad with electrofixier overhead. (Thread-up for continuous operation shown on page 143.)

OUR OBJECT was to find out what facts we could in reference to German finishing-plant techniques and application methods, following the line of investigation laid out by the first textile team and also by the team which investigated dyestuffs and chemicals. These groups had discovered certain facts which required following up. In some cases, for example, their main interest lay in manufacturing methods; and they, therefore, did not have the time to follow up application. Since they did accumulate a considerable amount of application data, this report may, in some instances, show a duplication of information. On the other hand, we may have obtained certain facts of a dyestuff or chemical nature which will complement reports by others.

Much of our information on dyeing and chemical application came from the I. G. Farben laboratories and from their technicians. We regret to say that only one plant we visited was even in partial operation; the balance were closed down on account of damage, lack of fuel or supplies, or being classed as non-essential producers. We were also hampered by lack of time, destruction of records and samples, and absence of key personnel. Therefore, we had to depend largely on the I. G. for many procedures in dyeing. Since the I. G. Farben industries enjoy a virtual monopoly in this field and since they lead in the development of new methods, this information can be considered the latest on application techniques. In addition, by consulting the various plants, we were able verbally to obtain confirma-

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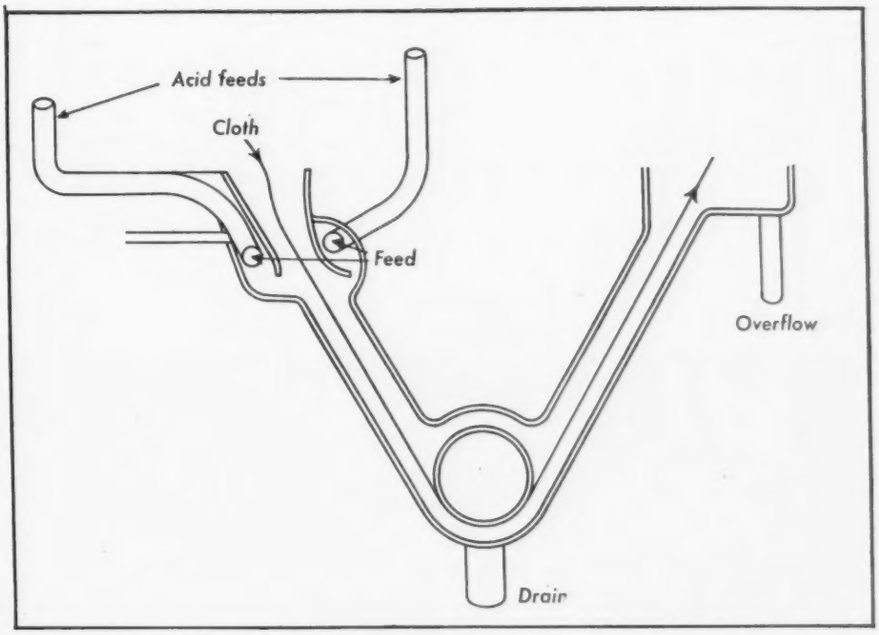
tion of certain procedures furnished by I. G.

Our impressions of German processing methods and equipment are varied. In some respects, they adhere to complicated techniques and make use of various ingenious mechanical devices; while in others, they ignore reasonably simple control methods. Except on some drying machines, we saw no temperature regulators or indicating thermometers, yet bleaching and dyeing formulas are very exact as to times, temperatures, and concentrations. In one plant, doing a very exacting line of work, we asked regarding a bleaching temperature and were told it was 35°C. Asking how they controlled the temperature, the reply was that the bleacher could tell by putting his hand in the bath.



Developing box for continuous anthrasol dyeing. These colors are widely used in Germany for light shades.

POOR LAYOUTS. The plants we visited were, in general, very poorly laid out as to flow of goods, and there was a great amount of trucking and hauling around of cloth. Most of the plants, however, were old and had been added to; or new lines of work, requiring additional machinery, had been started; so there was perhaps some justification for poor layout.

One modern plant, however, was built in the form of an *E*, with a spur track along the open side. Goods were received on the bottom end of the *E*, entered the bleach house and proceeded all the way around the *E*, through the dyeing, finishing, put-up, and packing, to the upper open end, where they went into railway cars or trucks. Chemicals and supplies were received at the middle bar of the *E*.

There is considerable hand labor in each operation, and the Germans usually have two or three times the number of operatives tending a machine that we would. Machines, with a few exceptions, are also operated much more slowly than ours. A speed of 40 meters a minute is considered quite good for pads, continuous ranges, and drying frames. About 30 meters is nearer the average.

The dyeing industry is very conscious of fast colors, and a large part of the work is dyed with Indanthrene, anthrasol, and naphthol colors. We saw no direct colors dyed except in very light shades and for the over-tinting of prints. Developed colors are more commonly used both for heavy, plain-shade blacks, particularly, and for discharge grounds in printing. Sulphurs are not generally dyed on piece goods, except for blacks; yet they are used for raw stock and yarns going into work clothing and lower cost items.

It must be borne in mind that the average lot of cloth is much smaller than in the United States; and for this reason, we find smaller dyeing machines and more hand labor. A few meters of damaged cloth may constitute a high percentage of the lot itself.

Finishing prices were stabilized very uniformly over Germany. Some plants, as an inducement to their customers to send goods to them, have absorbed both inward and outward freight charges, and even went so far as to send for the gray goods by truck and to deliver the finished goods in the same way.

The Germans were well aware of the necessity of controlling shrinkage and used several methods for this purpose. Some fabrics were loop dried and short framed, others were shrunk by overfeeding onto pin tenters and some were set with urea or melamine resins or by a formaldehyde treatment. In no case was shrinkage controlled as carefully as in the United States, nor were efforts made to bring it within our low tolerance. Here the main thing was to reduce shrinkage as much as possible.

MACHINES AND EQUIPMENT. German machinery is generally more heavily built than ours, which makes for durability, but also takes more power for operation. In only one plant did we see any kiers. These were small, holding probably not over four tons, and with no unusual features. Since the industry was largely a synthetic-fiber one, there was a variety of boiling-off and creping machines of open-width construction. Some were of wood, some of iron, some used a wheel to push the cloth under the liquor, some had conveyors to carry the cloth, others piled it in folds in one compartment and picked it up over a reel to transfer it to another. Most of them were homemade; but all of them served their purpose—to move cloth without tension.

Kettles and becks are generally smaller than ours and are made variously of wood, porcelain tile, and stainless steel.

Jigs are of all types ranging from those driven from a side shaft with a strap and weight to brake each beam, up to modern jigs, individually motor driven, with each beam geared or driven so that the whole can be operated with a minimum of tension. Jig boxes are small, seldom holding over 40 gal., but jig rolls are small also, so that they maintain a cloth-liquor ratio of from 1 to 1.5 up to 1 to 2.5. Some boxes seen were of iron, though the majority were of stainless steel.

Except for ranges for dyeing indigosols and hot flue units for naphthols, no continuous machines were observed.

Most embossing calenders are constructed with the filled roll on the bottom and the metal roll on top. One plant changed the position of the rolls because of the danger of pins or small pieces of metal getting into the filled roll and cutting the cloth. With the filled roll on top, any damage could be detected immediately; while if the roll was in the bottom position, the operators might run for some time before discovering they were ruining goods.

Tenter frames observed were of both

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clip and pin types, with most of the pin frames equipped with overfeeds for shrinkage purposes. One frame had a double chain combining both pins and clips. We saw no air guides. Most frames were equipped with electric guides, totally enclosed to prevent sparking, and reversing type motors for moving the entering sections in and out, following the travel of the cloth. Frames were both open and closed. Open frames had electrical heating units or steam coils mounted between the frame sides. The housings of the closed frames were much smaller than ours and were never heated hotter than 90°C. Fans were large and a rather rapid air circulation took place. Nearly all the frames observed had automatic stop motions for let-outs, and some even had feelers on the selvages which would stop the frame in case of a clip-out.

Both loop and lay dryers are used. These again operate at low temperatures with a high air circulation. We saw one lay dryer, of recent design, which used turning rolls instead of nets for carrying the cloth; and by means of an overfeed made possible fairly accurate shrinkage control.

PIGMENT DYEING. No practical runs had been made with pigment dyeing and only laboratory trials had been made by I. G. Pigments were mostly azo types with the exception of Heliogen blue and Heliogen green. The black was carbon black.

The latest binders used were urea formaldehyde and ethylene glycol Buna-latex mixtures, although trials with polyvinyl acetate and urea formaldehyde, using Soromin N as a plasticizer, showed promising results.

The Germans have worked entirely with oil-in-water emulsions, and never tried developing the water-in-oil types, other than running a few experiments.

All the formulas contained gum tragacanth, and we were told that smooth dyeings were not possible without it. Since it reduced the color value somewhat, numerous trials were made to get away from its use, but they always came back to it.

SULPHURS. Sulphur colors have been little used on piece goods except for blacks. When the Immedials or standard powder types were dyed, it was by the usual jig methods.

However, the Germans have developed two new types for stock and package dyeing, the Immediasols and the Immedialeuco colors.

The Immediasols are selected colors which can be dyed with hydrosulphite instead of sodium sulphide and give the same fastness as the standard colors.

They are offered in powder form and contain sodium carbonate and hydrosulphite so that they go into solution instantly in warm water. They are after-treated in the usual manner.

The Immedialeuco colors are sold in paste form and are special types held in a reduced state by sodium hydrosulphide. Thus, they are naturally unstable, their storage life is short, about a month, and containers have to be kept sealed because of the danger of premature oxidation from the air.

They are dyed with the addition of ammonia and hydrosulphite and air-oxidized afterward. It is claimed that the fastness properties of these types are just as good with air-oxidation as the regular types with chrome, copper, and acid.

While neither of the Immediasols or the Immedialeucos have been dyed on piece goods, they might possess some advantages in ease of making up and softness of hand.

DIRECT DYES; DIAZOTIZED AND DEVELOPED. Nothing new was found in the application of these dyes that differed materially from standard practice. Few directs were being dyed other than on mixed fibers and for very light shades. Developed colors were dyed in heavy shades.

The I. G. Leverkusen has a new developer—Developer A. It is claimed that with this developer acetate fibers are not stained; or, if they are with certain combinations, the acetate will be only faintly stained the same shade as the dyeings.

ACETATE COLORS. These are known as the Celliton or Cellitazol fast colors. Methods of application are the same in Germany as in the United States. Light shades on certain constructions are padded and dried continuously, but the bulk of the dyeing is done on jigs, kettles, or star frames.

The problem of gas-fading is not given the attention in Germany that it is in the United States, although the Germans are aware of its existence. The I. G. has done some work toward its prevention.

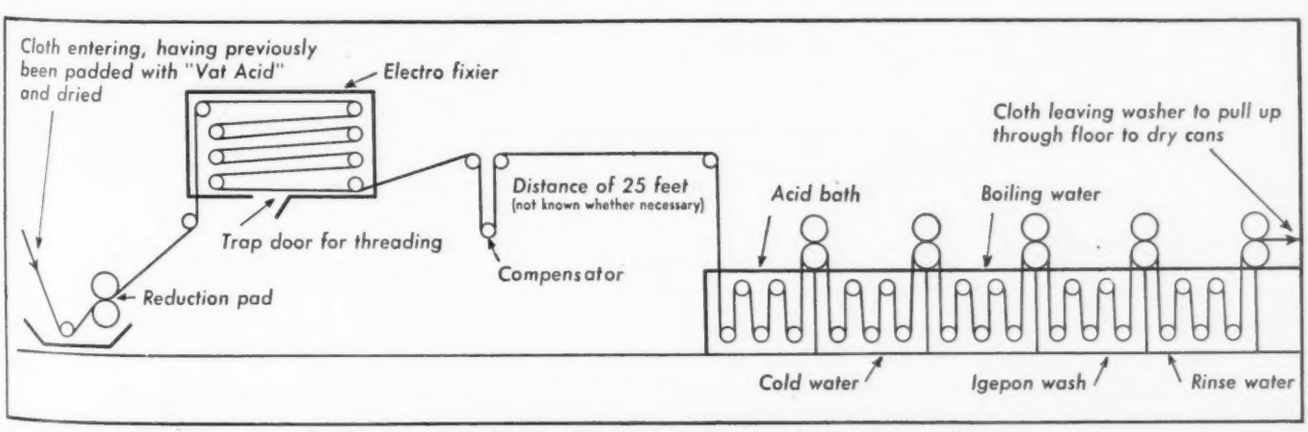
NAPHTHOL DYEING. Naphthol dyeing follows the methods well-known in the United States. Little of interest was found other than the bicarbonate method for dyeing on winches in the rope and the same general procedure for preserving acetate whites. German plants jig dye a large quantity of naphthol navies for work clothing with Blue BB base or salt.

A large yardage is run on the hot flue in various shades, mostly blues and reds on A S prepare.

ANTHRASOL DYEING. These colors are used extensively all over Germany for the production of fast dyeings in light and medium shades, so considerable attention has been given to dyeing techniques.

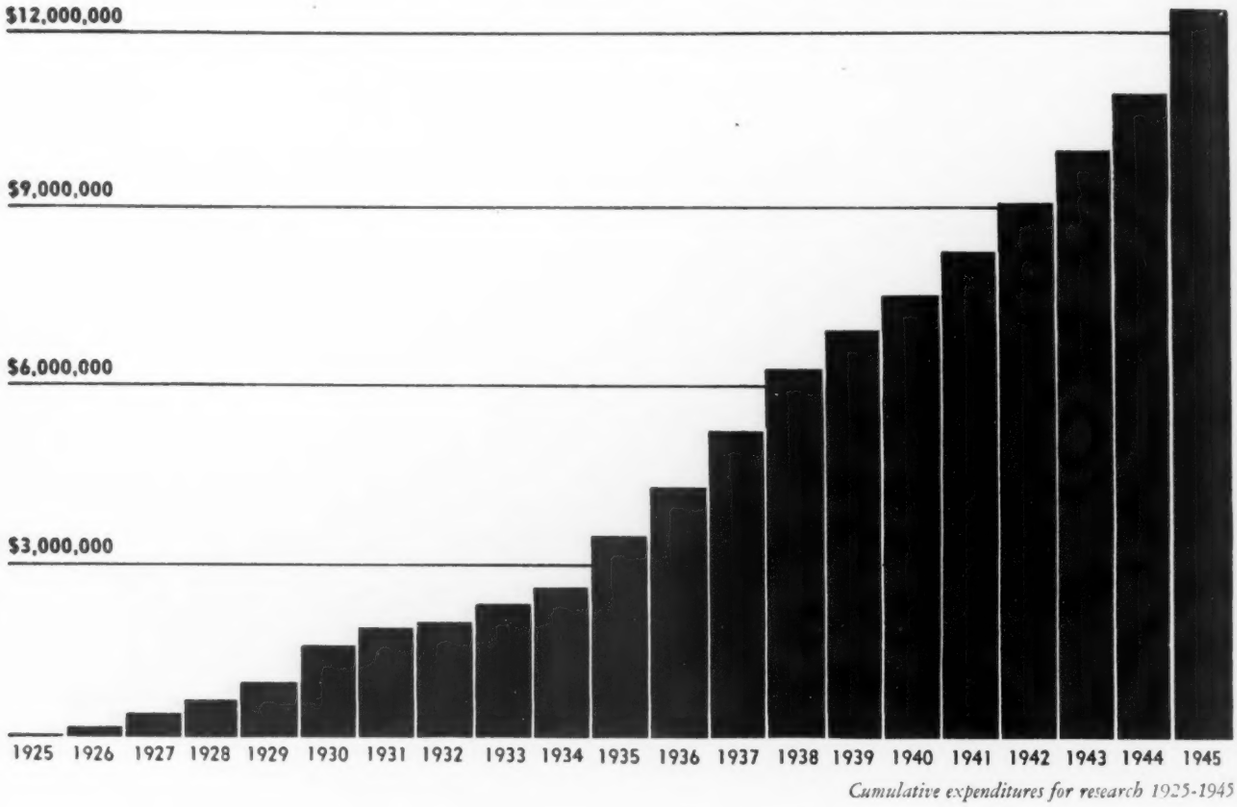
Though there are three methods for dyeing these colors, we invariably found everyone using the nitrite method. Of

(Continued on page 229)



Continuous machine thread-up for dyeing by the vat-acid, electrofixier method.

Sound research gives a business a permanent backlog of ideas and products



Cumulative expenditures for research 1925-1945

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Plants depreciate, machines wear out, but the worth of a consistent research program is cumulative. It continues to produce throughout the years—a backlog from which come product improvement and new products, more efficient ways to do things. It protects a business against complacency within and competition without. It stimulates every phase of the business, from production to selling.

A real appreciation of practical research has been developed and inculcated throughout the Celanese organization. As a result, an ever-growing complement of sound scientific talent has been attracted to the company, and the scope of the company's research has become increasingly broad and versatile. Its operations in applied research reach into the three related fields of synthetics—textiles, plastics and chemicals. Work in one field logically supplements work in the others. An important discovery in synthetic textiles, for example, often leads to a valuable development in synthetic plastics.

Today, with a centralized research laboratory equipped with the most modern facilities being prepared at Summit, New Jersey, Celanese Corporation is moving for still closer integration and coordination of research activities. Celanese Corporation of America, 180 Madison Avenue, New York 16, N. Y.

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LINEN-LIKE FABRICS
Can Be Woven From Rayon

HIGHLIGHTS: *Flax spinning system imparts linen-like properties to spun-rayon fabrics—British increase stiffness of fabric by crease-resistant finish—Pins on tow-finisher card cylinder should be set at 70°, on worker at 40°, and on stripper at 35°.*

By S. A. G. CALDWELL

FABRICS TAKE their characteristics mainly from the yarns of which they are made. The appearance and handle of the yarns are, in turn, determined by the system of machinery on which they are prepared and spun. While structural peculiarities impose definite limits on the range and variety of fabrics that can be made from natural fibers, rayon staple has proved its versatility for fabric production and its adaptability to almost any system of spinning.

Although lacking the firm texture and absorbent properties of linen, spun rayon can be made into fabrics which have many characteristics in common with linen fabrics; and for many purposes in which texture and absorbency are not necessary or desirable—particularly for dress goods and bed and table linens—rayon is replacing linen. The increasing demand in Great Britain for these linen-type rayon fabrics far exceeds present production capacity. Where greater firmness of handle is considered necessary, it is obtained by a crease-resisting finish applied to stiffen the material to any desired degree.

VISCOSE RAYON USED. Because of the trouble experienced with static electricity when processing acetate rayon, viscose rayon is used extensively for the manufacture of linen-type products. Blended yarns are sometimes made in the approximate proportions of 75% viscose to 25% acetate. Mixing is done prior to carding, a stock of the desired batch being made up in bins and drawn on as required.

There is considerable diversity of opinion regarding the most efficient method of processing rayon staple, whether on cotton, flax-tow, or worsted machinery. This problem must eventually be decided by the demand for the products. General opinion favors flax-tow machinery as being most economical for the production of yarns up to about 35 linen count and cotton machinery for finer numbers.

It is generally conceded that the flax-tow card is definitely superior to the types used in cotton and wool manufacture for sliver formation. The carded material is open and free from neps, and the fiber disposition imparts considerable strength to the sliver.

Full-circular, tow-finisher cards with five to seven pairs of rolls are commonly used for processing rayon staple by the flax system. As the amount of fiber breakage increases with the number of rolls employed, the rolls should be limited to the minimum number necessary to obtain the desired carding action. With proper pin gradation and proper settings and speeds of card parts, a card with five pairs of rolls will be capable of dealing effectively with the fiber types and staples normally processed on this system.

Distribution of Rayon Staple Delivered

Spinning System	1944 (6 Mo.) %	1945 (6 Mo.) %
Cotton	57.0	43.8
Flax	16.1	24.2
Wool	11.3	7.5
Silk	0.7	1.0
Export	14.9	23.5

Fig. 1. Comparison of British rayon deliveries and distribution shows that rayon processing on the flax system is increasing.

AUTOMATIC FEED. Cards are equip-

Settings for Five-Roll, Full-Circular Cards

Dimensions over metal

Cylinder, dia. and face	5 x 6 ft.
Feed-roll, dia.	2½ in.
Strippers	8 in.
Workers	7 in.
Doffers	14 in.

	Pins per inch in row	Projection (in.)	Gage
Cylinder	6	1/8	19
Feed stripper	4	5/32	16
Top doffer	6½	9/32	20
Bottom doffer	7	1/4	21

Strippers	1st	2nd	3rd	4th	5th
Pins per inch in row	5	5½	6	6½	7
Projection (in.)	1/8	1/8	1/8	1/8	1/8
Wire gage	17	18	19	20	21
Gage setting to cyl	15	16	17	18	19
Gage setting to worker	16	17	18	19	20

Workers	1st	2nd	3rd	4th	5th
Pins per inch in row	5	5½	6	6½	7
Projection (in.)	7/16	13/32	3/8	5/16	1/4
Wire gage	16	17	18	19	20
Gage setting to cyl	15	16	17	18	19

Fig. 2. These settings are given as representative for standard five-roll, full-circular cards.

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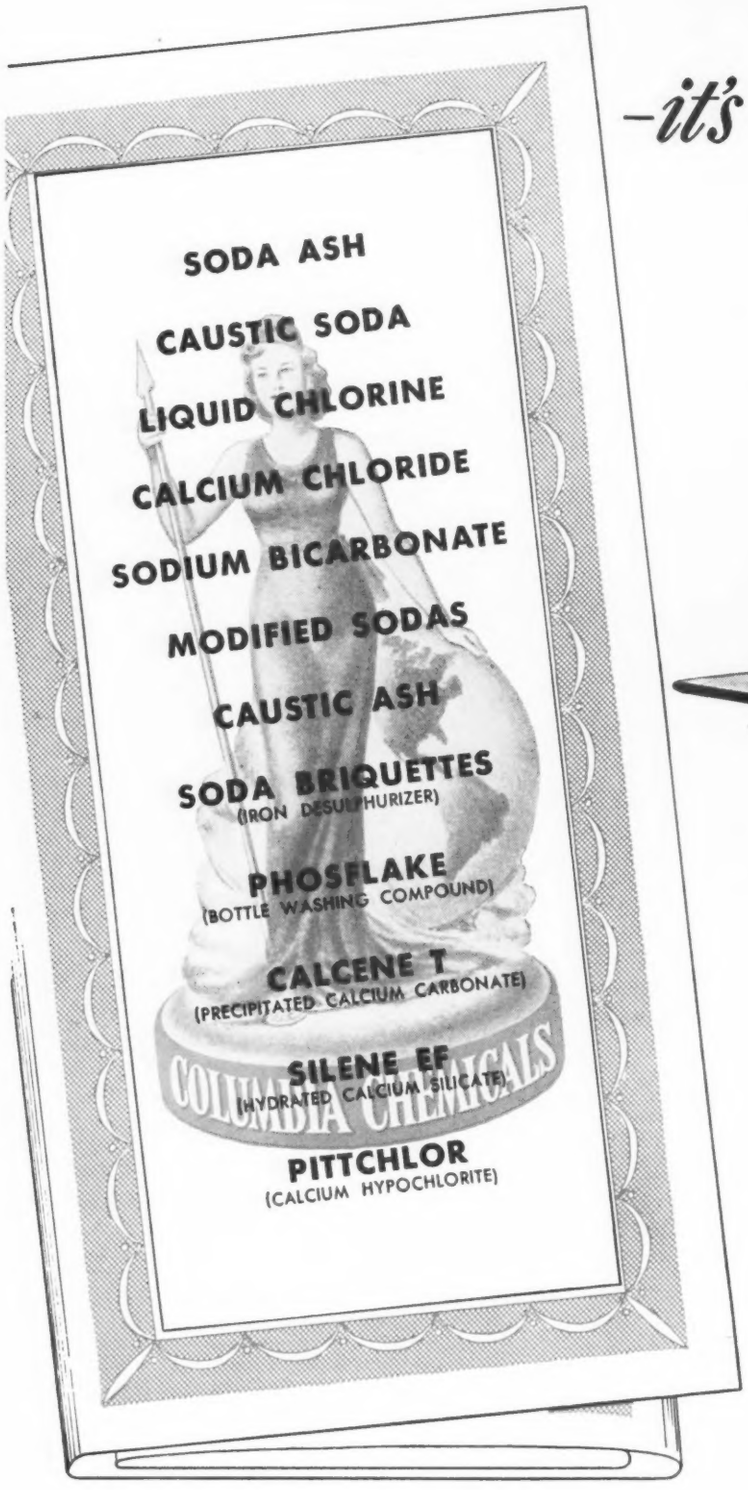

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ped with automatic feeds and drawing heads. The latter are fitted with can-packing and coiling mechanisms. A single carding unit of this type will give an output of approximately 75 lb. of card sliver per hour, the quantity varying to some extent with the type and quality of material and the count of yarn to be made. Four- and six-inch staple lengths are normally used for processing on the flax system, by far the greater quantity being four-inch staple.

Except in the working of seconds or waste material in which a certain amount of carding and fiber breakage may be necessary, the function of the card in rayon processing is limited to sliver formation. Card-roll settings are based on this fact.

The specifications in Fig. 2 have been found satisfactory for a unit capable of processing first quality, seconds, and waste material.

Levelness of feed and suitable setting and speeding of the card parts are important factors in the production of a uniform sliver. Variation in the weight of feed results in frequent sliver breakage and roll laps at the delivery end. It is also the main cause of web breakage on the lower workers and strippers. Such breakage results in an undue amount of fiber dropping onto the floor as waste.

The modern-type mechanical feeding hopper is used. The endless feed apron comprises a series of hardwood bars studded with pins which convey the fiber from the supply bin. During its upward travel, surplus material is beaten off by stripping knives which have a slow reciprocating motion. A doffing knife removes the material from the lattice apron as the apron passes over the top roll. The surplus is carried forward over the pins of a fixed comb segment, from which point it falls back into the hopper. Passage of the material through the feeder assists in opening up the solid plugs of fiber and ensures uniformity of distribution on the feed sheet.

The speed at which the various rolls should be driven depends on the density and angle of the pins, the rate of loading, and the condition of the material to be carded. When processing waste fiber, it may be necessary to adjust the worker and stripper speeds to obtain the desired amount of opening.

CARDING. The carding action is most severe between the feed rolls and cylinder and between the cylinder and the various workers. To reduce this action to the minimum required when carding rayon staple and to prevent undue fiber breakage, the number of pins passing through the material at these points should be limited to the total required to ensure the requisite amount of fiber opening. This can be effected by reducing the cylinder speed or by increasing the rate of feed and the worker speeds. The intensity of the carding action at any point on the card is also closely related to pin density. Light loading, by reducing the rate of feed, will increase the carding action; while heavy loading will reduce it. Increase in pin density on the cylinder and rolls will also increase the carding action, and vice-versa.

While the speed and setting of workers and strippers may need to be varied slightly when carding seconds and waste material, owing to the variable nature of the fiber, standard conditions for processing first-quality material can be established and maintained. Appropriate roll surface speeds are given in Fig. 3.

Roll settings, Fig. 2, may need varying slightly to compensate for deviations from the standard in pin angle, taper, or projection. When setting the card rolls, and particularly when spacing the workers to the cylinder, the object should be to maintain the most open setting that will ensure the necessary degree of fiber opening with freedom of movement around the card to prevent roll laps. Laps will occur if the setting is too wide, if the clothing is damaged, or if the surface speed of the stripping rolls is too low.

Wood clothing is preferable to the older-type leather filleting with knee-bent pins. The hard-tempered steel pins set in wood retain their keenness over a longer period of time, are less liable to lose their settings, and are more easily stripped on open settings.

The pin angle and tape are closely related to efficiency of carding, and both factors vary to some extent in different makes of card.

Experience has established the most suitable angles as: cylinder 70°, worker 40°, and stripper 35°.

The length of taper should be equal to the projection. If it is shorter, the holding capacity of the pin will be reduced; and an excess amount of fiber will be thrown off as waste. A projection extending below the surface of the stave will weaken the pin and result in more frequent pin breakage.

PIN PROJECTION. The ability of card rolls to function efficiently and remain free from laps depends as much on correct proportioning of the pin projection on the adjacent rolls as on their relative settings. This projection is determined by the weight of material to be worked and by the type of card. If the required minimum is exceeded, the fiber will have a tendency to embed itself in the pins, particularly when carding fine-denier material.

Surface Speed (ft. per min.)	
Cylinder	2,500
Feed rolls	18
Workers	25
Strippers	400
Drawing roll	200
Doffers	100

Fig. 3. Approximate surface speeds of carding parts.

The method of measuring the pin dimensions and the setting of the pins on the rolls is shown in Fig. 4. The over-all length of pin is indicated at a, the projection and taper at b. The pin angle c is measured from a line passing along the pin axis to another drawn at right angles from the point where the radial line intersects the pin axis on the roll surface. The thickness of the stave is indicated at d, the pin and shell radius at e and f respectively.

The drawing head now constitutes a standard part of carding equipment, and its inclusion is essential in rayon-staple processing for the production of a sliver of maximum uniformity and strength. The Eves high-speed, push-bar type is most suitable for this purpose, as it combines smoothness of running with maximum degree of fiber control in drafting.

The addition of can-packing and coiling mechanism ensures a well-packed can from which the sliver can be withdrawn with little risk of breakage, and piecings are reduced to a minimum. Because of the light, open nature of the material, large-size cans, about 42x16 in., should be used.

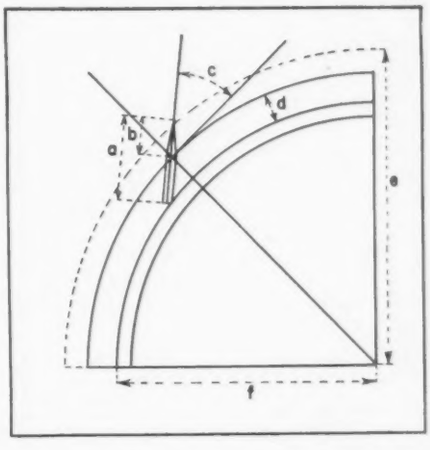

Fig. 4. The pin dimensions and the angles at which the pins are set on the rolls have a great effect on the quality of carding.

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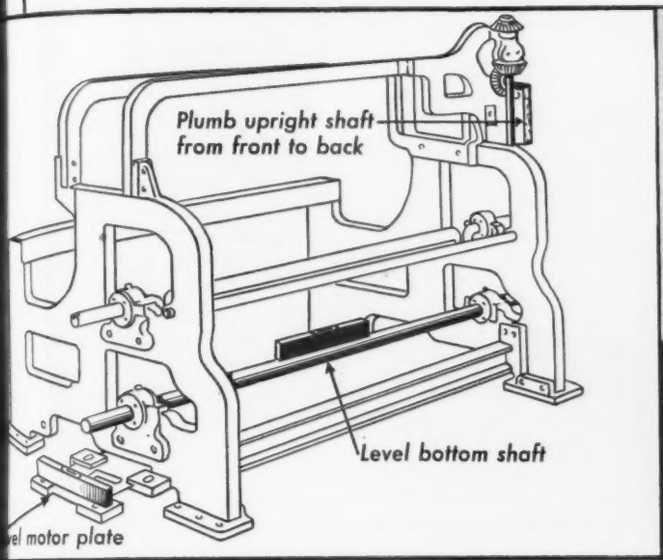
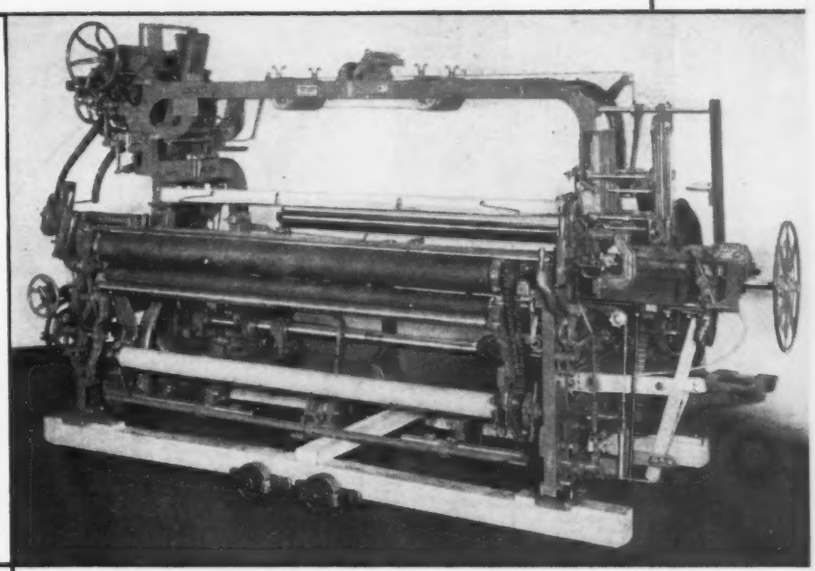


Diagram to indicate parts to be checked by level and plumb when setting up a loom.



A loom as delivered to your plant may lose efficiency by improper installation.

HIGHLIGHTS: *Proper spacing and setting of new looms aids weaving efficiency — Machine should be leveled and cushioned against excess vibration — Careful lubrication and check against binding should be made before starting up.*

By **EUGENE P. SCHREMP**

SOME TEXTILE MILLS are now installing new looms for the first time in a long while. It is important that these looms be properly spaced and arranged so that the weaver may have easy access to each loom. Before the shipment arrives, a floor plan should be made to scale, giving the location of posts or other obstructions which may interfere with the looms, and the looms should be located upon this plan. Over-all measurements of the looms which have been ordered may, of course, be had from the loom builders. This information greatly facilitates the loom arrangement.

There should be a minimum clearance of 12 in. between the lay ends of each loom, and more if possible. Back alleys should be wide enough to allow passage of a full beam on a warp truck. Years ago in some mills looms were placed so close together that it was impossible to put in a new warp without lifting it over other looms. This practice has, fortunately, largely disappeared.

Oily floors can be avoided by placing sheet metal approximately one-yard square under the head motion and under the motor-drive side of the loom. From these surfaces the cleaner may quite easily wipe up any surplus oil which would otherwise soak into the floor.

LEVELLING AND FASTENING. Levelling and fastening looms to the floor is a most important part of their installation. Looms should be levelled as illustrated above, using the bottom shaft, upright shaft, and motor plate as levelling points. The four feet should be levelled first. After this is done, care should be taken when blocking the bottom shaft supports that the shaft is not thrown out of line. If too much or too little packing is used, the shaft will bind and there is danger of scoring the shaft and bearings. After the loom is tightened to the floor, it should be turned by hand and the cause of any stiffness eliminated.

Cement floors require either anchor bolts or felt pads with a cementing compound. If anchor bolts are used, it is a good practice to use some sort of an impact pad under the feet of the loom to absorb some of the vibration. Lag screws used to fasten the loom feet to wooden floors should be long enough to go through the top flooring into the sub-flooring. Otherwise, there is danger of loosening the top flooring. Use of some type of pad between the loom feet and floor is to be strongly recommended.

If the floor vibrates excessively, it should be braced underneath with heavy timbers. Workmen should be cautioned

(Continued on page 220)

Here, in the Du Pont Technical Laboratory, experienced colorists are constantly studying problems relating to the application of dyestuffs.

It is here, in this laboratory, that *your* dyeing problems become *our* problem. Our Technical Staff stands ready to place its fund of knowledge and experience at your disposal. E. I. du Pont de Nemours & Co. (Inc.), Dyestuffs Division, Wilmington 98, Delaware.

Du Pont Dyestuffs

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BETTER THINGS FOR BETTER LIVING . . . THROUGH CHEMISTRY

Georgians Advance Data on CARDING and SPINNING

HIGHLIGHTS: *Compressing card sliver permits placing 10 to 33% more sliver in can—One mill puts 16% more yarn on paper tubes than on wooden spinning bobbins—Value of oilless bearings for cap-bar tips, saddles, and bolsters questioned.*

CARDING AND SPINNING practices employed by 26 Georgia mills, representing approximately 1,300,000 spindles, were revealed at a meeting of the Textile Operating Executives of Georgia, March 16, in Atlanta, Ga. Following the practice during the war in the "meeting by mail," ten questions on carding and nine on spinning were mailed to members and written answers were received, in addition to the discussion from the floor by approximately 300 members and visitors attending the meeting. Information condensed from the written answers is presented here.

Question No. 1. Give your experience with compressing sliver on cards.

Nine mills indicated satisfactory results from compressing sliver on cards, while three mills stated that they had discontinued the practice as unsatisfactory. Several mills were able to put approximately 20% more sliver in the cans, and some were able to process the sliver through subsequent machines without readjusting the roll setting. Others found that subsequent processes, particularly the slubber, would deliver cut roving unless the roll settings were widened.

Question No. 2. What results have you obtained by cards equipped with metallic clothing?

Only three of the 26 mills answered this question. Two of the mills have only one card each clothed with metallic wire, and the third mill has all its cards operating with this type of clothing. All three mills expressed satisfaction with the results obtained.

Question No. 3. Have you tried changing the direction of the turntable in relation to that of the tube gear in order to put more uncompressed sliver in the drawing can?

Answers from ten mills were to the effect that no appreciable difference in the amount of sliver placed in the can resulted from reversing the direction of

Mill No.	Cotton (staple in in.)	Card prod. (lb. per hr.)	Motes and fly (%)	Flat strips (%)	Cyl. and doffer strips (%)	Sweeps (%)	Invisible (%)
1	LM 15/16	15.25	1.25	2.00	——	.03	——
2	7/8	17.00	1.78	3.07	——	——	——
3	SM 1 3/32 M 1 1/32 & 1 1/8 SLM 15/16	18.00	1.85	3.50	——	.38	——
5	LG 15/16 M 1	—— ——	1.703 .634	2.32 2.31	.664 .609	—— ——	—— ——
6	Dory 1 1/8 LSA 1 3/16 AQU 1 1/4	6.00 6.00 6.00	1.16 1.02 1.15	3.54 3.95 3.36	1.28 1.52 1.50	—— —— ——	.44 .49 .61
7	50% M & 50% SLM 80% 1 & 20% 15/16	14.74	1.25	2.50	.70	.35	——
9	————	15.00	1.50	3.00	——	.25	——
10	M 1	12.50	1.42	2.50	None	.50	——
14	M 1 1/32	1.58	3.10	——	——	.26	——
15	M 15/16	16.00	1.20	2.80	——	.42	——
16	SLM 15/16	——	2.38	2.92	——	.39	——
17	————	——	1.57	3.00	——	.30	.13
18	M 1	14.00	1.57	2.77	.70	——	——
19	M 1	14.00	2.14	3.35	——	.43	——
20	1 1/16	——	1.06	2.77	——	.50	——
25	M 15/16	——	1.20	2.24	.57	.17	——
26	SLM 1	——	1.24	2.25	.50	.17	——

Fig. 1. Card waste percentages, asked for in question No. 6, are tabulated here. Each mill participating was identified by the same number throughout the questionnaire.

Mill No.	Total hr. between grindings	Lb. between P grindings—100% prod.
1	——	2800
2	240	2880
3	——	2880
5	184–192	2784
6	200	1400
8	288–296	4900
	576—doffer 288—cyl.	6566—doffer 3283—cyl.
9	275	4125
10	440	5500
11	200	——
12	——	2800
13	80	1000
14	364—doffer 182—cyl.	—— ——
15	210	3360
16	156	2650
17	240	4800
18	480	6720
19	308	——
20	240	2400
22	250	3620
23	212	2544
24	300–325 250	3600-4550 ——
25	120	2100
26	250	4375

Fig. 2. The grinding schedules used by the mills were reported as above.

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For additional information write for technical booklet giving complete directions on uses and applications of Ceglin.

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PROVIDES A FINISH OF DISTINGUISHED CHARACTER.

STANDS UP UNDER LAUNDERING.

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Makes possible a wide range from softness to crispness.

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Helpful in solving manufacturing problems.

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SYLVANIA TEXTILE FINISHES

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the turntable; and in many instances, the mills found that a definite disadvantage resulted from the practice because of the uneven package obtained. Two mills stated that turning the turntable and the tube gear in the same direction had worked satisfactorily for them. One of these mills was able to place 1½ lb. more sliver in the can, while the other mill found that the practice resulted in fewer ends down on the slubber.

Question No. 4. What has been your experience with air-changing in the card room?

None of the 14 mills answering this question is equipped for air-cleaning in the card room.

Question No. 5. What results have been accomplished by the use of a motor-driven tension regulator for clothing cards?

Four mills stated that they used this device and obtained a more even tension on the card clothing, resulting in a smoother face which requires less grinding before starting the card in production.

Question No. 6. Please give your waste percentages on cards.

Answers to this question are shown in tabulated form in Fig. 1.

Question No. 7. What difference in waste have you secured through the use of the waste-control (perforated) card screen?

While one mill stated that no noticeable difference in card waste occurred when changing from the rib screen to a perforated screen, six mills reported a decrease in waste percentages ranging from 10% to approximately 33%. Mill No. 26 stated that it had found little difference in the percentage of waste but had noted a considerable lowering of the quality of waste.

Question No. 8. How often should cards be ground?

Tabulated answers to this question are given in Fig. 2.

Question No. 9. In relation to the diameter of the bottom roll of a roving frame, what is the minimum diameter that a cushion top-roll may be buffed down?

Differences between front steel-roll diameter and minimum top-roll diameter
4 mills—minus 1/32 in.
3 mills—plus 1/16 in.
2 mills—plus 1/32 in.
2 mills— 0
1 mill —minus 3/16 in.
1 mill —minus 5/32 in.
1 mill —minus 1/16 in.
Minimum cot-wall thickness
2 mills—7/64 in.
1 mill —6/64 in.
3 mills—5/64 in.
3 mills—5/64 in.
1 mill —2/64 in.

Fig. 3. Differing opinions on roll diameter and thickness of cot wall are evident in the answers to question No. 9.

A summary of the answers to this question is given in Fig. 3.

Question No. 10. What do you consider the best spindle speed and twist multiplier for use on fly frames?

Tabulated answers to this question are given in Fig. 4.

Question No. 11. Give your experience with wooden-blade spindles with paper tubes.

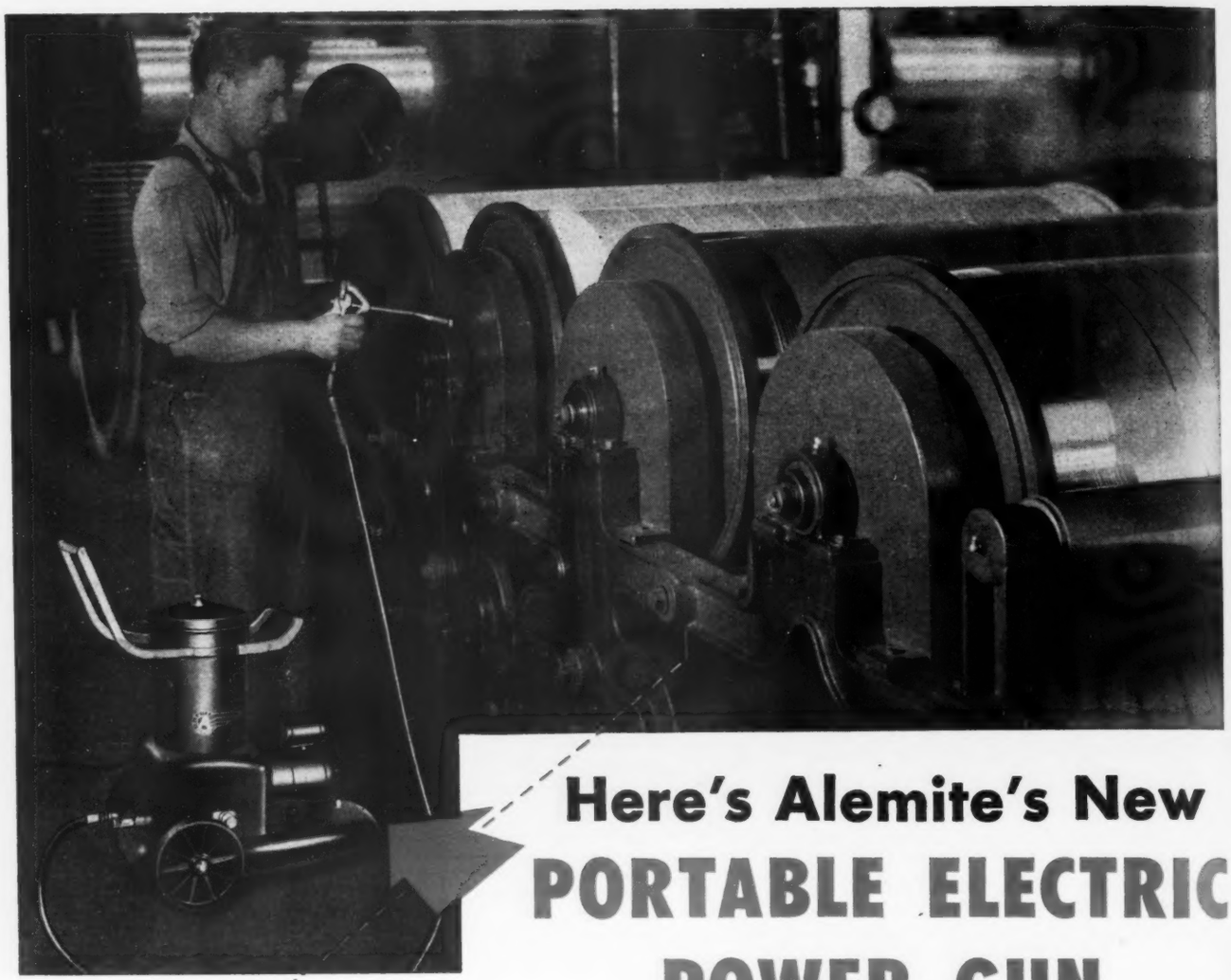
(Continued on page 219)

Mill No.	Package size (in.)	Hank roving	R.p.m. spindle	Twist multiplier
1	8 x 4	2.50	1200	1.25
2	9 x 4½	.80	715	1.11
3	9 x 4½	1.00	914	1.43
	8 x 4	1.60	1074	1.43
5	12 x 6	.72	734	1.13
	9 x 4½	1.40	1100	1.31
	9 x 4½	1.40	1100	1.27
	9 x 4½	2.00	1100	1.27
6	9 x 4½	1.50	920	1.06
	9 x 4½	2.00	920	1.07
	8 x 4	4.40	1050	1.16
	7 x 3½	6.60	1100	1.20
	9 x 4½	1.50	820	.98
	9 x 4½	2.00	920	1.04
	8 x 4	4.40	1050	1.10
	7 x 3½	6.60	1100	1.13
	9 x 4½	1.50	735	.91
	9 x 4½	2.00	920	.94
	8 x 4	4.40	1050	1.02
	7 x 3½	6.60	1100	1.09
	9 x 4½	1.50	——	.86
	9 x 4½	2.00	820	.89
	8 x 4	4.40	1050	.97
	7 x 3½	6.60	1100	1.01
7	8 x 4	2.67	1050	1.30
8	12 x 6	.68	586	.95
10	8 x 3½	3.00	1200	1.38
14	——	2.00	1000	1.20
16	8 x 4	1.80	1100	1.30
17	10 x 5	.70	828	1.20
18	9 x 4½	1.37	1000	1.20
19	7 x 3½	3.65	1150	1.20
20	12 x 6	1.10	650	1.13
	10 x 5	1.10	775	1.13
23	10 x 5	.80	750	——
24	10 x 5	.80	750	1.45
25	10 x 5	1.00	850	1.27
26	10 x 5	1.48	805	1.16

Fig. 4. Spindle speed and twist multiplier for roving were tabulated from the answers to question No. 10.

Mill No.	Method	How often cleaned	How often greased
3	Air and hooks	8 hr.	12 mo.
4	Pick by hand	Weekly	2000 hr.
5	Air	3 times Wkly.	6 mo.
7	Pick by hand	Yearly	6 mo.
9	Air	Daily	6 mo.
10	Air	48 hr.	12 mo.
12	Air	8 hr.	6 mo.
13	Air	24 hr.	6 mo.
15	Air	Weekly	3000 hr.
16	Air	24 hr.	——
17	——	Yearly	12 mo.
18	Air	8 hr.	6 mo.
19	——	2000 hr.	2000 hr.
20	Air	Weekly	6 mo.
21	Air	Weekly	6 mo.
22	Pick by hand	On 4s–7s 576 hr.; On 8s–12s 2744 hr.	12 mo.
23	Pick by hand	Monthly	3 mo.
25	Pick by hand	Yearly	6 mo.
26	Air	Weekly	6 mo.

Fig. 5. The answers to question No. 17 revealed that most of the mills clean ball-bearing tension pulleys on spinning frames with compressed air.



Here's Alemite's New PORTABLE ELECTRIC POWER GUN *In Action!*

Oiler using a MODEL No. 7190 Alemite Electric Power Gun in a large rayon mill in South Carolina. The textile industry, with its many complicated machines finds this new Alemite gun ideal for safe, positive lubrication.

• No plant in any industry is too large or too small to enjoy the benefits of the new Alemite Electric Power Gun No. 7190. It is a typical Alemite development—born of the skill and experience of the leader in high pressure lubrication.

Model No. 7190 is a 25-lb. capacity grease gun with a heavy-duty ⅓ h.p. electric motor. Just plug in and start greasing. It delivers fast, positive high pressure lubrication with all types of lubricants that seek their own level.

Easily rolled anywhere. Big, heavy-duty Bassick wheels make it easy to move about on rough floors. The unit comes equipped with 12-ft. electric cord, high pressure hose, and a control valve with hydraulic coupling. For further details call the Alemite Distributor or write Alemite, 1888 Diversey Parkway, Chicago 14, Illinois.

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OPA Makes a Gesture Toward COTTON GOODS

HIGHLIGHTS: *OPA-CPA program permits a 5 to 10% rise in prices of cottons based on higher raw material and labor—Goal is 50% increase in production over 1945 third-quarter low point—Restraint on raw-cotton prices planned.*

By GLADYS MONTGOMERY
Washington Editor, TEXTILE WORLD

OPA HAS TAKEN a decided step in the direction in which the textile industry has been urging the agency to move. Textiles seem to have been taken as an example to show what can be accomplished if OPA grants a more liberal price-ceiling structure than was required under the strict application of the old formula. The move is aimed at bringing about a substantial increase in critically needed consumer clothing items. Provisions and the procedures of the government's new wage-price policy were by-passed in granting for cotton-textile fabrics a level of price ceilings considerably above minimum requirements set by law.

The general increase in price ceilings, which varies for different fabrics but which ranges in most cases between 5% and 10%, has been allowed in recognition of increases in raw cotton and labor costs. OPA has proceeded on the assumption that the present program of price increases is final for this industry, except in a few hardship cases for which provision is being made.

To safeguard the program, OPA has taken steps to prevent a rise in raw cotton prices resulting from speculative pressures. It was pointed out that there was no service in granting extra price allowances which could be lost almost immediately through a further speculative rise in raw cotton. Hence, in the face of bitter opposition from the Congressional cotton bloc, Economic Stabilizer Bowles directed Price Administrator Porter to order higher margin payments for trading in cotton futures. Effective date of the order has not been announced at this writing.

The order was necessary, Chester Bowles said, because cotton exchanges had rejected a proposal to increase margins voluntarily. An OPA spokesman expressed the opinion that while New York, New Orleans, and Chicago cotton exchanges would not initiate this move, they will not block it. Government action was taken under section 2D of the Emergency Price Control Act of 1942, as amended, and Section A of the Stabilization Act of 1942. Bowles is prepared to take further steps if necessary. It develops, however, that OPA cannot proceed further without the approval of the Secretary of Agriculture since paragraph 3E of the Price Control Act specifies that "No action shall be taken under this act by the Administrator or any other person, without prior written approval of the Secretary of Agriculture, with respect to any agricultural commodity." Meantime Senators from the cotton states are studying ways and means to put a halt to OPA's moves.

OPA Decontrols

Price controls were lifted from textile machinery and accessories shortly after OPA had announced 4% increase in ceiling prices. **See page 204 for details.**

RAW COTTON POSITION. OPA explains its position with regard to raw cotton as follows: In granting an overall increase to cotton fabrics, consideration was given to (1) the rise in cotton parity prices from 24.14¢ to 24.99¢ per lb. ($\frac{15}{16}$-in. middling landed Group B) since August, 1945, when textile prices were last revised; (2) the rise in ten spot markets from 22.38¢ to 26.56¢ per lb. since August, 1945.

Although OPA is not required by law to reflect raw-cotton market prices above parity, the present revision of cotton-textile prices does allow for much of the rise in the raw-material market, it was pointed out. The next step, according to OPA, is to check speculative buying of raw cotton by imposing margin requirements—a step already noted. The government order will set a uniform margin, which at the present price for cotton would be $30. The proposed margin would be $10 a bale when the price of cotton futures is 25¢ per lb. and below, plus an additional $10 a bale for each one cent, and portion thereof, advance in cotton prices above 25¢.

Another factor which OPA officials say justified higher price ceilings for cotton textiles is the rise in labor costs. Hence, an increase averaging 4½% was granted in accordance with provisions of the Bankhead-Brown amendment to the Stabilization Act.

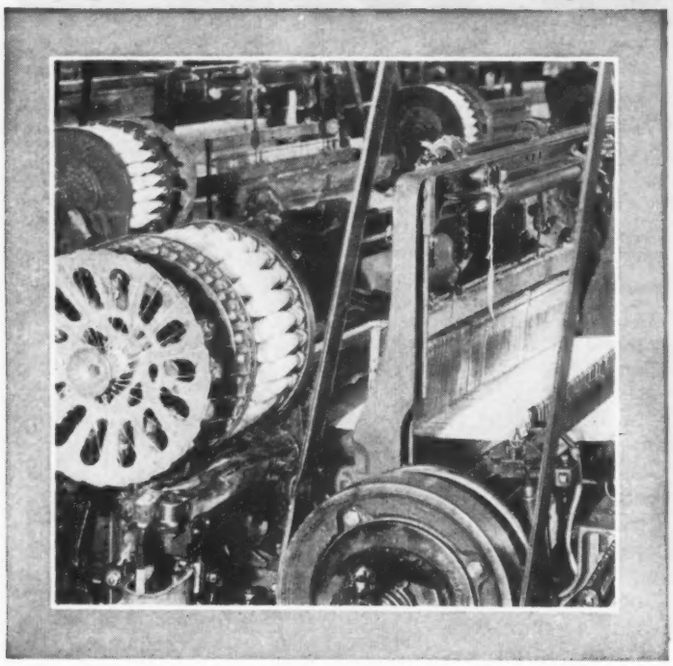
A new band of prices known as "Band A" has been approved for mills paying the higher minimum wage of 65¢ an hour, with other allowances, already approved by the Wage Stabilization Board. This band, which is superimposed on the former higher band, is based on an estimated 15% increase in 1946 labor costs. The percentage increase was reached after examination of payroll data by OPA accountants in a survey of 15 mills actually paying higher wage levels and the amount agreed with the opinions expressed by representative producers as well as union representatives. The 15% was applied to the percentage of the selling price which labor costs represent for each major item, as shown by previous OPA accounting surveys.

The second band, known as "Band B," is the former higher band of prices, adjusted upward to reflect current cotton costs. The former lower band of prices has been revoked.

OPA points out that in order to qualify to charge the Band A prices, a mill must be actually paying its employees an approved increase of at least 12½% above such average hourly straight time wages as would have quali-

(Continued on page 230)

HERE'S WHAT YOU NEED IN A *Loom Oil*—



1. **High lubricity to cut down wear.**
2. **Low gum-forming tendency.**
3. **Good cohesion for minimum drip and creep.**
4. **Washability to remove the "minimum."**
5. **Sure protection against rust.**

WHAT SHELL DOES IN PREPARING *Shell Textilis Oils for Looms*

Lubrication is the oil's main job. Shell employs highly scientific methods of selecting crude oil stocks—only those yielding high lubricity are used in loom oils. "Oiliness" is improved by compounding straight mineral oils with natural fatty oils.

Gum-Forming is evidence that an oil oxidizes easily. Shell removes all unstable compounds from loom oils by means of a solvent-extraction process.

Dripping and Creeping are largely eliminated by the selective refining which results in a viscous, cohesive oil that *stays put.*

Washability is secured by the use of natural fatty oils that readily emulsify with water—gets rid of any trace of oil in the finishing.

Rust Prevention is a primary problem in the moist atmosphere maintained in the weaving department. Shell fortifies Textilis Oil with a special rust preventive that gives it metal wetting ability much higher than that of water—means sure protection against rust.

The Shell Lubrication Engineer will gladly give you specific advice on the lubrication of any type of loom, as well as on other mill equipment.

For informative literature about textile machine lubrication, write to Shell Oil Company, Incorporated, 50 West 50th Street, New York 20, New York; or 100 Bush Street, San Francisco 6, California.

SHELL TEXTILE LUBRICANTS

SHELL

TEXTILE Equipment NEWS

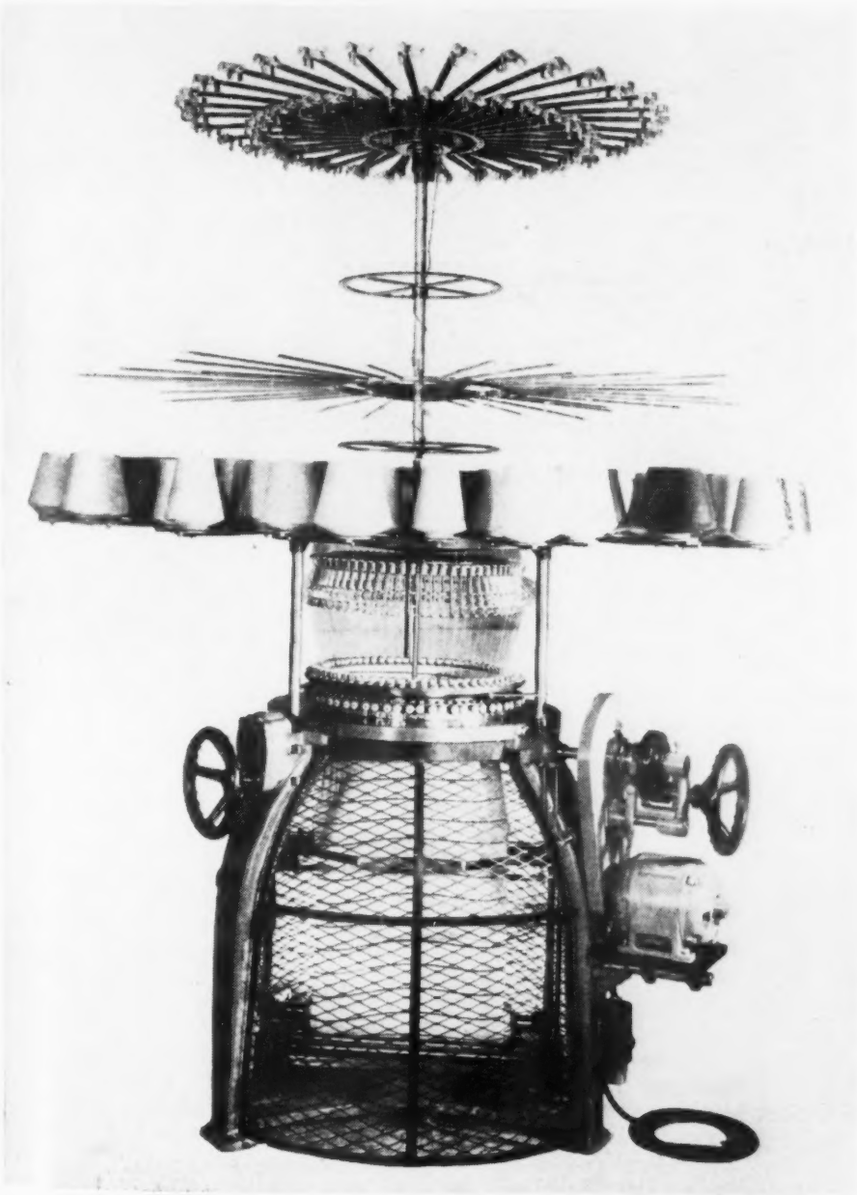
Supreme Knitting Machine Features High Productivity

A 64-feed, circular jersey knitting machine, said to be capable of producing more than 100 yd. per hr. on the 20-in. model, is being built by Supreme Knitting Machine Co., Inc., 105 Johnson Ave., Brooklyn 6, N. Y.

Machine sizes range from 6 to 30 in. in diameter.

The machine rests on tripod legs to permit easy accessibility from all sides. Yarn is fed from a stationary stand through an overhead electric stop-motion control, and each feed is equipped with a micromatic stitch adjuster. Uniformity of take-up tension on the knitting fabric and of wind-up on the fabric roll are maintained by means of a balanced take-up revolving in Timken bearings. Provisions are made for easy adjustments of take-up to meet the requirements of an individual fabric.

The motor drive is equipped with a silent chain and a patented disk clutch said to be capable of instantly stopping the machine or starting it at full operating speed.



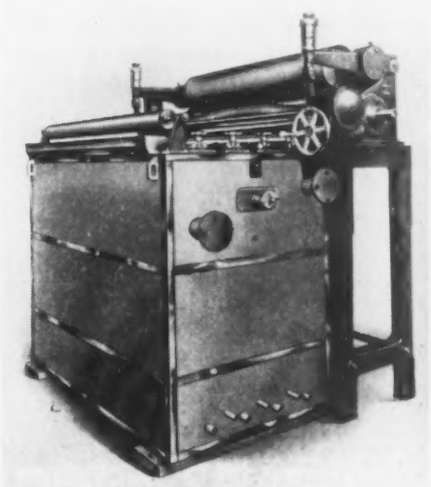
The face of the revolving cam is made of heat-treated steel for long life. (Supreme)

Batch-Processing Unit Does Many Finishing Jobs

A small machine economical in the use of materials and suitable for short and long continuous operation for dyeing, washing, saturating, pre-heating, and aftertreating cotton, rayon, and mixed-fiber fabrics is being manufactured by Morrison Machine Co., 1171 Madison Ave., Paterson 3, N. J. Installations are being made in a number of finishing plants.

Known as the "Williams Unit" and covered by patent, the machine holds approximately 60 gal. of water, based on the 50-in. face size. At a speed of 100 yd. per min. when processing a medium-weight fabric, the water in the unit is circulated in three complete cycles per minute. Thus, 180 gal. per min. of the processing liquor is carried through the unit. Temperature is raised and maintained by means of indirect steam.

Rolls are equipped with roller bearings which operate when submerged in the liquor and reduce the friction generated on the cloth in passing through



This Williams Unit, equipped with a 5-ton microset nip stand, can be used for a number of finishing processes. (Morrison)

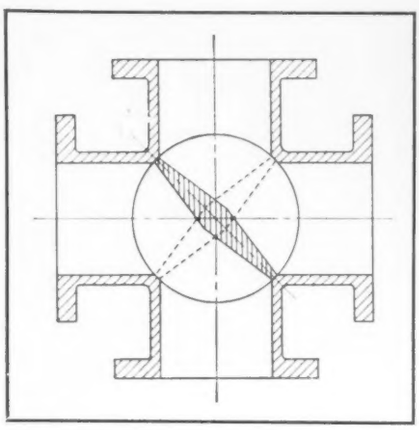
the unit. Control of pressure at the point of delivery is maintained by micro-set squeeze rolls.

The machine is insulated to reduce heat losses and is designed to permit the circulation of cold brine solutions to cool treating fluids, if desired. Standard machine widths in graduations of 10 in. ranging from 40- to 70-in. face are being manufactured. A number of units may be set up to form a continuous processing unit; or if desired for high-speed work, two units may be combined to circulate the same treating bath and act as a single machine.

Line Flow of Liquid Controlled by Valve

A valve which controls with a single vane the transfer of chemicals, water, size formulas, etc. from one line to another has been announced by R-S Products Corp., Wayne Junction, Philadelphia 44, Pa. The valve can be operated manually or automatically.

Constructed for endurance, the valve is said to operate over a wide range of pressures and temperatures. It is available in sizes from 4 to 72 in.



The control valve is equipped with adjustable stop screws and an indicator for vane position (R-S Products)

Edmos Knitting Machine Utilizes Many Feeds

The drive and all the gears are shielded or enclosed in the new streamlined Edmos jersey knitting machine which is being built in three sizes, 18-in. with 64 feeds, 20-in. with 72 feeds, and 24-in. with 84 feeds, by Edmos Products Corp., 15 Christopher Ave., Brooklyn, N. Y. All three sizes can be supplied in 16 to 24 cut, and at a later date machine sizes from 10 in. up will be produced.

Central oiling is provided by means of two cups over the main gearing housing and by means of an oil reservoir inside the housing. The handwheel at the end of each housing permits turning over the machine slowly by hand with the expenditure of little effort. Handwheels do not turn when the machine is operating from power.

Techniques learned during the war are utilized in the manufacture of the machines, such as steel casting of cams and other precision parts. Dynamic painting is employed, in addition to streamlined housing and enclosed gears throughout.

Among other features of the machine are an adjustable motor bracket for taking up slack in the drive belt and a sealed-unit take-up with a self-compensating arm which operates through a tapered friction clutch.

Guides feeding yarn to the needles can be set up and adjusted quickly by feel; the only tool needed is a screw driver. Both segments of the cam can be adjusted simultaneously since they are cast as a single unit.

The machines are designed to operate at 28 r.p.m. and are reputed to be (on an inch basis) the fastest producer of jersey fabrics. It is claimed that the machines have more feeds in relation to their diameters than any others of the sinker-top type.

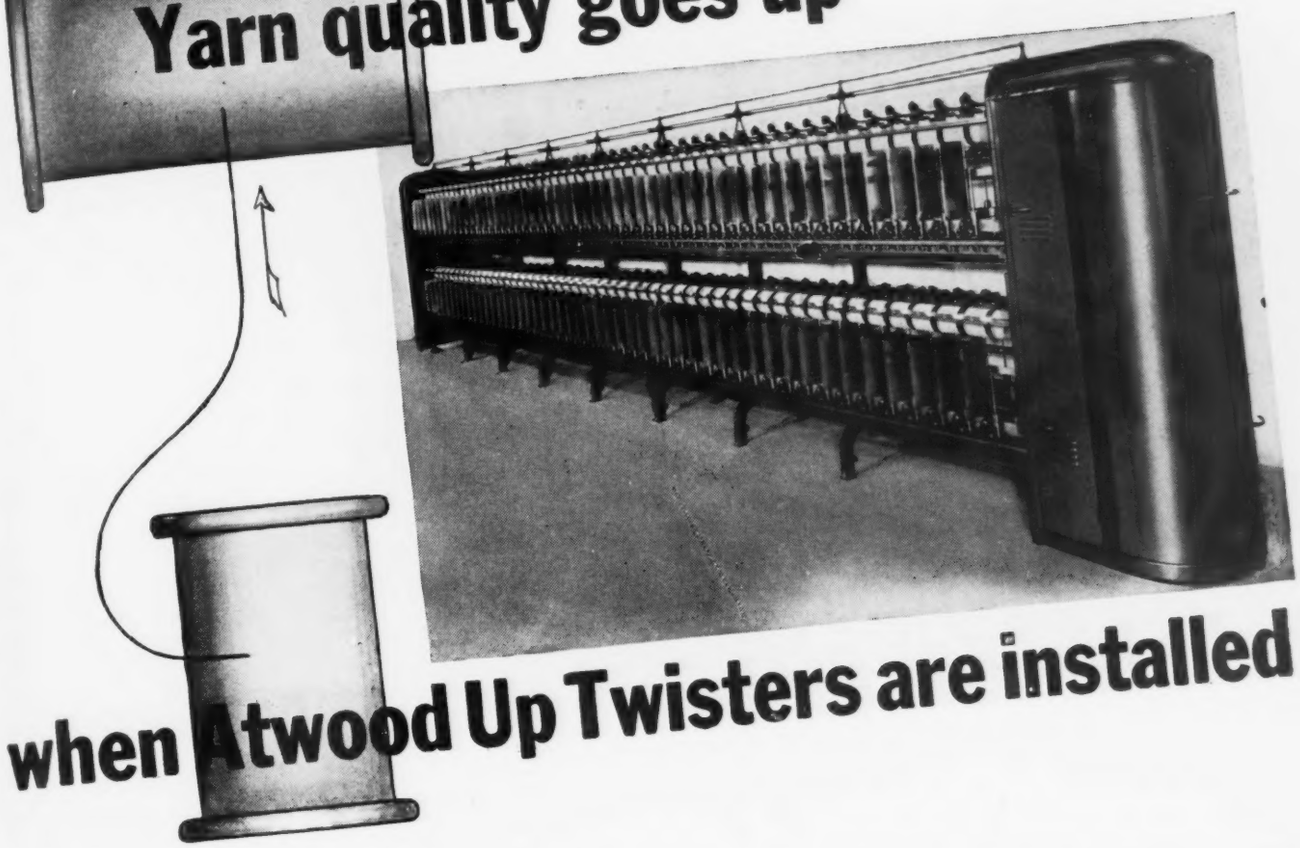
New streamlined jersey knitting machine has an unusually large number of feeds. (Edmos)

Drafting Sliver on Card Performed by New Device

A set of rolls for drafting card sliver as it is delivered by the doffer, said to have a capacity for inserting a draft up to 5 and to offer possibilities for eliminating one process of drawing, has been patented by Prentice M. Thomas, assistant editor of TEXTILE WORLD and J. H. Barton, Columbus, Ga. An experimental model is now in operation in a large Southern cotton mill.

Three pairs of metallic rolls are used. They are mounted in stands which may

Yarn quality goes up



when Atwood Up Twisters are installed

In the textile industry Atwood machines are known for higher production of higher quality yarns at lower overall costs. These advantages to the yarn producer are the result of improved design features which are constantly being developed by Atwood engineers.

Take, for example, the bobbin hanger that is a standard part of the new Model 110 Up Twister. This hanger, which replaces the old conventional finger, provides an outstanding improvement in yarn production in that:

1. It accurately positions the takeup package in relation to the traverse guide and takeup roll.
2. It results in packages being formed parallel at all times.
3. The thread lay is accurately controlled because the bobbin does not shift horizontally.
4. The drive is more even and positive than on packages mounted in finger brackets.

Results? Less burnt yarn, less hard twist, fewer broken filaments, more uniform conditioning.

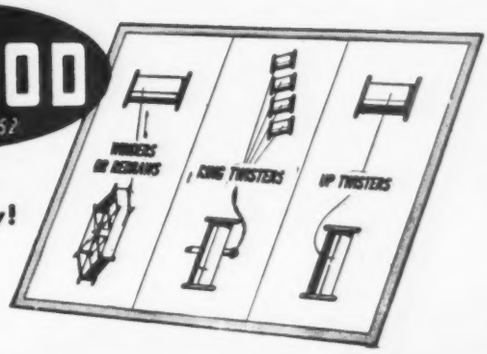
This is only one of the many improvements that have been, are being and will be made in Atwood twisters. Why not ask your Atwood representative to tell you *what's new in yarn machinery?* Or write direct for descriptive publications—no obligation.

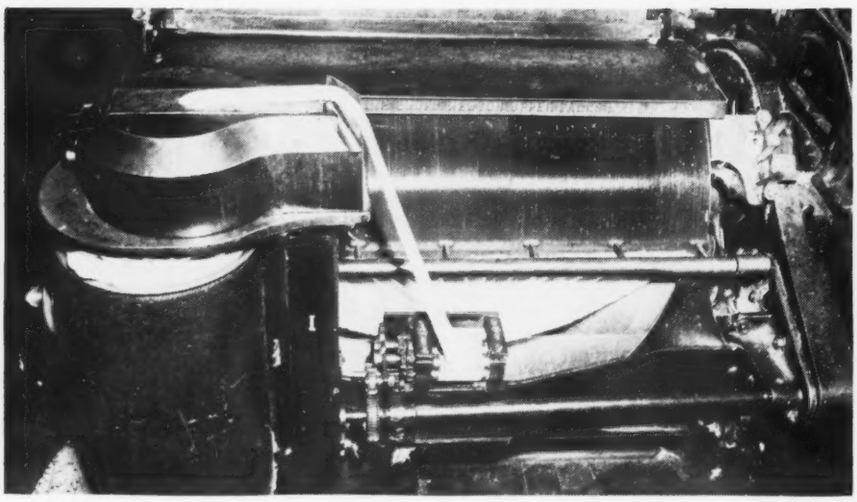
AD-2

ATWOOD DIVISION
FARREL-BIRMINGHAM COMPANY, INC.
STONINGTON, CONNECTICUT, U.S.A.

ATWOOD
SINCE 1852

What's new in yarn machinery!





The card-sliver drafting rolls are attached to the card near the calender rolls, and may be operated with or without the calender rolls. (Thomas and Barton)

be adjusted to accommodate different lengths of cotton or synthetic fibers, and the stands are fastened to a supporting L-shaped frame. The frame is bolted to the card frame at a point directly below the calender rolls. The device, covered by U. S. Patent No. 2,357,982, may be operated with or without the card calender rolls.

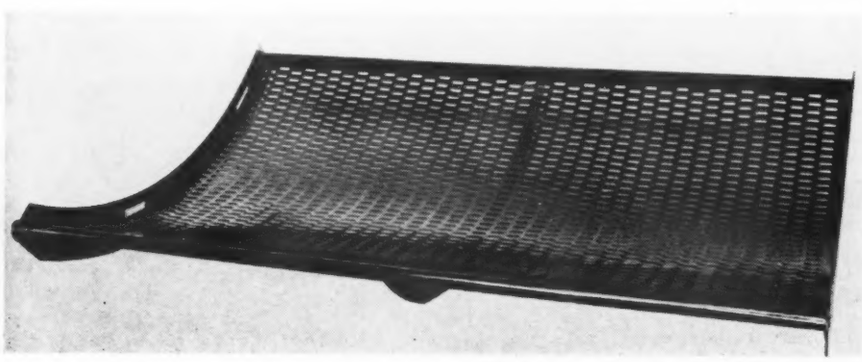
Spring weight is applied to the drafting rolls to provide sufficient roll bite for even drafting, and friction clearers are designed to remove motes, dust, and linter-type fibers which may adhere to the rolls. The mechanism is driven from the calender-roll shaft through a series of gears.

Results of tests on card sliver processed by the attachment are said to indicate that its use aids in decreasing the number of ends down, reducing the number of doffs by placing more sliver in the can, and making possible an increase in card production.

Perforated Screen Reduces Card Fly

A waste-control screen for use on a revolving-flat card is being manufactured by Saco-Lowell Shops, 60 Batterymarch St., Boston, Mass. The screen has been adopted as standard equipment on all new Saco-Lowell cards and can be applied as a replacement for the old-type screen.

Better control of air currents are said to reduce the amount and quality of fly waste when using the new perforated screen over comparable use of the old ribbed screen.



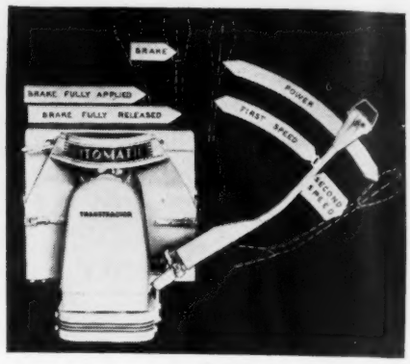
The perforated screen reduces the loss of spinnable fiber thrown off as card fly waste. (Saco-Lowell)

Electric Hand Tractor Aids Materials Handling

An electrically propelled hand tractor provided with finger-tip controls to permit one man to operate it in a variety of materials-handling applications is being manufactured by Automatic Transportation Co., 101 W. 87th St., Chicago 20, Ill., a division of Yale & Towne Mfg. Co.

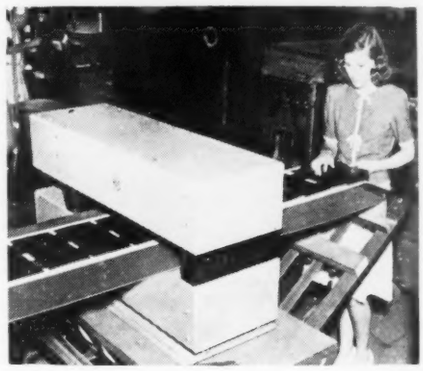
Equipped with front-wheel drive, the tractor is designed for maneuvering in close quarters and for transporting substantial loads by means of a trailer attached to it. Forward- and reverse-drive controls operate by push buttons from the guide handle, and the operating speeds are controlled by the angle at which the guide handle is held.

Brakes are applied when the guide handle automatically reaches an upright position after it has been released.



The operator walks beside the tractor and controls it with the lever. (Automatic Transportation)

Detector Halts Process When Metal Is Present



A magnetic field is used to screen processing stock for metal particles. (Radio Corp.)

An electronic metal detector, the reaction of which can be used to stop a process, light a warning lamp, ring a bell, etc., has been announced by Radio Corp. of America, RCA Victor Div., Camden, N. J. The device can be used with conveyor speeds up to 600 ft. per min. and with any depth of stock on the conveyor. It will react to any size pieces of metal.

Stock passing through the inspection aperture is screened by a high-frequency electromagnetic field generated by coils. Power is fed to the coils by an electronic oscillator, and the reaction set up when metal is present in the stock passing through the magnetic field is detected and amplified by an electron-tube amplifier. This amplifier initiates the action necessary to stop the process, ring a bell, etc.

THIS PICTURE *Is Important*

—the last few turns—down to the primary winding—a SONOCO Cone of rayon yarn is pictured here delivering to the knitting machine. This is the critical point—a break now means a possible second and more press-off waste . . . truly an important picture because when multiplied by hundreds or thousands it can spell the difference between profit and loss.

There is a SONOCO Cone made especially for every known yarn delivery problem.

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Dyes & Chemicals — PRODUCTS & PROCESSES

Hundred New Dyes Reported From Germany

More than a hundred new dyes, as well as many new intermediates for dye manufacture, developed by the I. G. Farbenindustrie and its subsidiaries between January, 1939, and September, 1945, have been uncovered through Quartermaster Corps investigations in Germany and Italy, the Office of the Publication Board has reported.

Included among the new products are dyes for dyeing and printing cotton, wool, rayon, nylon, and other fibers. Comprehensive details on the new dyes are contained in a 520-page report, No. 2461, prepared by M. A. Dahlen, QMC consultant, and distributed by OPB. About 440 pages of the report are devoted to dyes.

One of the new types of dyes described in the report is the "Astrazone" group of water-soluble dyes of extreme brilliance. The present range of "Astrazones" comprises two shades of yellow, two shades of orange, pink, red, and two shades of blue.

The "vat acid," "vat acid" padding, and continuous "vat acid" dyeing processes are reported by Mr. Dahlen to be among the most interesting developments discovered during his investigation.

Report No. 2461 may be ordered in Room 1312, Commerce Building, or by mail.

Metallized Bordeaux Dye

CALCOFAST WOOL BORDEAUX RB CONC.; Calco Chemical Div., American Cyanamid Co., Bound Brook, N. J.

A new addition to the Calco line of metallized dyes, Calcofast Wool Bordeaux RB Conc., is announced by Calco Chemical Div., American Cyanamid Co., Bound Brook, N. J. The division states that the fastness to light of Calcofast Wool Bordeaux RB Conc. is very good and that it is equally fast to washing, sea water, and sea water spotting.

The exceptionally satisfactory all-around fastness properties of this new color recommends it particularly for the better grades of men's and women's wear, tropical suitings, knitting yarns, bathing and sweater yarns, and upholstery fabrics. It has been recommended to manufacturers of carpets for steamships and airplanes as well as carpets for the seashore.

Paste Dispersion Coating Method Is Reported

German manufacture of polyvinyl chloride coated fabrics and films by use of the paste dispersion method is reported by U. S. investigators as being the most outstanding development in the German coated-fabrics industry, according to the Office of the Publication Board.

A description of the new technique is contained in a general survey of the coated fabrics industry in Germany, Report No. 2335 (46 pages and 9 plates). The report was prepared by De Forest Lott and William D. Hedges, investigators for the Technical Industrial Intelligence Branch of the Joint Intelligence Objectives Agency.

The Germans are reported to have made wide use of the paste dispersion method of coating fabric with polyvinyl chloride resin. The resin, plasticizer, and pigments were mixed together, applied in the form of a paste containing 100% solids, and then fused under high heat. This is said to have resulted in a tough, flexible film or coating.

Paste applications were used, with eminent success, on a wide range of materials, including light-weight coatings of about 2 oz. per sq. yd., standard coatings of 8 to 12 oz. per sq. yd., for upholstery and leather goods materials, and shoe-soling material.

Emulsion coatings of polyvinyl acetate were reported as used extensively in Germany as a substitute for oil cloth and for shoe inner soles and linings. Though fabrics with this type of coating do not possess the low temperature flexibility

(*Continued on page 206*)

Mill Maintenance — TO KEEP 'EM RUNNING

Usefulness of Knife Prolonged by Care

Knives and other sharp-edged tools are difficult to obtain; and until the supply becomes sufficient to meet the needs for a number of cutting jobs in the mill, mechanics and other operators who use knives should observe good-maintenance rules to prolong the usefulness of their tools.

The following maintenance suggestions were obtained from a number of knife manufacturers:

1. Avoid abuse. Eighty per cent of the trouble with cutting tools results from improper care or use.

2. When a cutting tool is being sharpened on an emery wheel or grindstone, it should be held so that the abrasive action of the wheel is away from the point and toward the heel of the tool. This method of grinding results in less damage to the temper of the metal.

3. Never sharpen a cutting edge on a dry wheel, and use a wheel of as fine a grain as possible.

4. Take plenty of time to sharpen the tool. The abrasive action should be slow and mild.

5. Use a fine whetstone after sharpening to remove burrs from the edge.

6. Use the newly sharpened knife with care. Handle it as a precision tool, and do not overtax its capacity.

7. Use a cutting tool for the specific kind of job for which it was designed.

8. When not in use, store the tool so that it cannot drop on a hard floor and so that other heavy objects cannot drop on it. The best procedure is to have an individual holder placed in a convenient location and make sure each tool is put in its holder immediately after use.

9. Make certain that new or inexperienced employees know how to use the tool properly and follow the established procedure for its care.

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THE *Self-Scouring* WOOL FIBRE LUBRICANT
WITH REMARKABLE WETTING AND DETERGENT PROPERTIES

- ☆ NON-GUMMING
- ☆ SOLUBLE IN HOT WATER
- ☆ UNIFORM PENETRATION OF FIBRE
- ☆ INCREASES TENSILE STRENGTH OF YARN
- ☆ SELF-SCOURING ☆ SOAPLESS FULLING

IMPORTANT
FREE TECHNICAL ASSISTANCE
Sonneborn offers you the services of its technical experts who will work with you in your mill, at no cost or obligation, to help establish the proper method of applying Fybrol 1115 for best results.

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Write or wire today for details on Fybrol 1115L, the remarkable new *Self-Scouring* Worsted Processing Oil. Same exclusive features and advantages as the wool oil announced above.

Woolen and Worsted Oils • Petroleum Sulfonate Bases • Detergents and Dyeing Oils • Penetrants • Delustering Specialties • Warp Dressings • Finishing Sizes and Softeners • Water Repellents • Sulfonated Oils • Wetting and Rewetting Agents

Kinks AND SHORT-CUTS

A $25 SAVINGS BOND FOR YOUR IDEA

A $25 Savings Bond will be awarded each month for the most useful "kink" published in this department. This contest is open to all readers of TEXTILE WORLD, and there is no limit to the number of entries any one person may make.

Contributions must be received not later than the last day of the month to be eligible for the award for the second succeeding month. Items may pertain to production methods, mill engineering, safety, cutting costs, improving quality, speeding up production, in brief any little device, stunt, kink, or short-cut which you have tried out in your own mill and which you believe will be helpful to other mill men. Items should contain sufficient detail to permit other mill men to utilize the ideas in their own operations. Previously published material is not eligible for the award. Judges of the contest are the editors of TEXTILE WORLD.

TEXTILE WORLD shall have the right to publish any items submitted. Items which are accepted will be paid for at our regular rate for this type of matter with extra payment for appropriate sketches or photographs. The sketch you submit need not be a finished drawing.

In writing to this department, give your real name and address as evidence of good faith and to permit payment for items accepted. Please advise whether your name may be used with the kink.

Contributions should be addressed to: Technical Editor, TEXTILE WORLD, 330 West 42nd St., New York 18, N. Y.

★ **SAVINGS BOND PRIZE FOR APRIL**

(February Contest)

Quality and Safety Aided by Tenter Catwalk

We have found that a catwalk over tenter frames where cloth feeds into and emerges from the drying cylinders of a palmer or a sanforizer is of great help to the operators and to supervisors who find occasion to examine the cloth at these points. Before installing the catwalk over our tenter, it was necessary for the operator to reach across the tenter frame to thread up the machine for operation or to remove foreign matter from the drying cylinder.

The catwalk can be made of wood or iron, and should be wide enough so that the operator can easily balance himself on it. A handrail should extend above and in front of the catwalk to aid the operator in balancing himself.

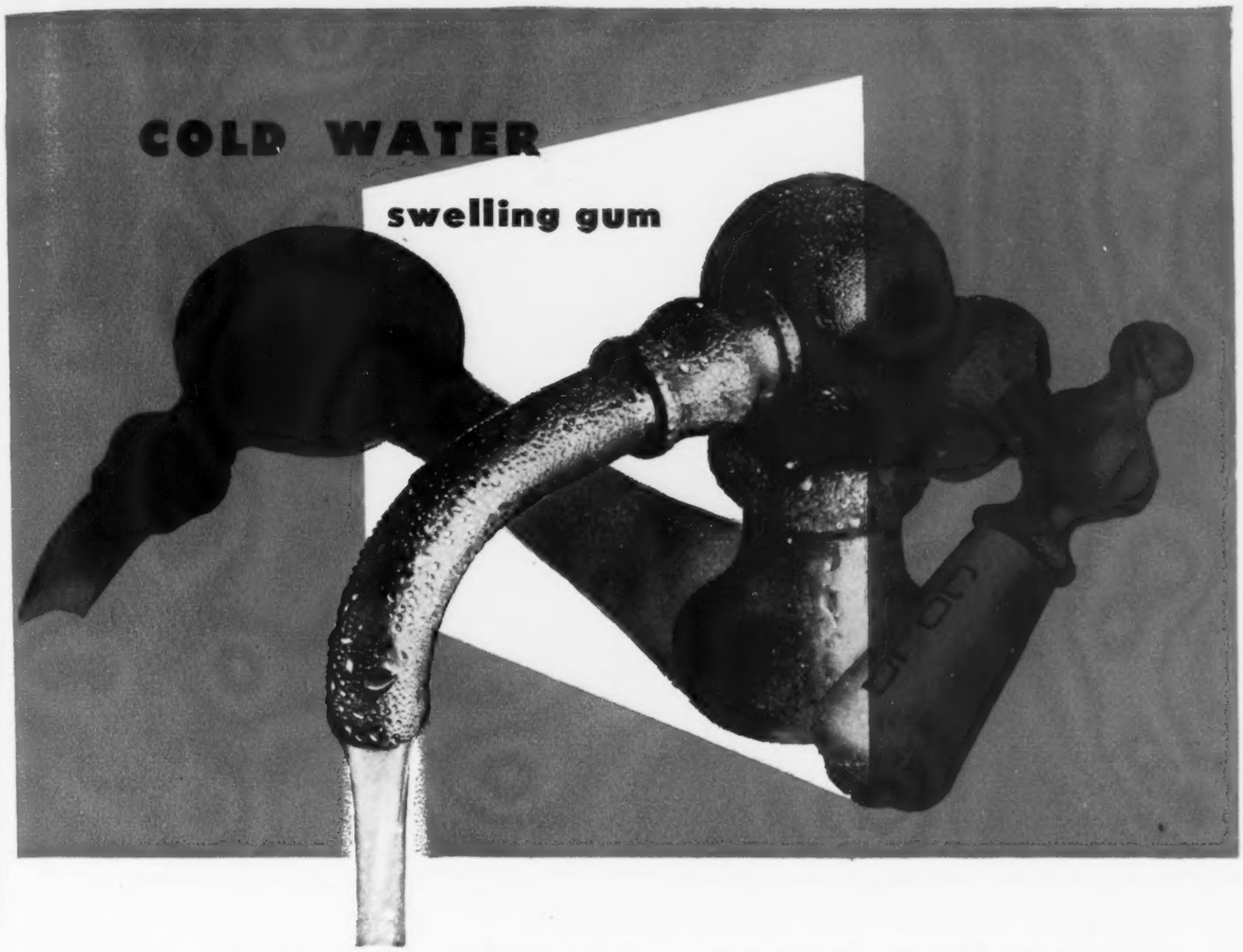
Although installed primarily for safety, this idea has also aided production and quality in our plant by making it easier to keep the cylinder free of foreign matter which might stick to the cloth or cause repeat marks. *(K-463) C. Waters, Hopewell, Va.*

Tenter-frame operators now use the catwalk over the frame instead of reaching across the frame.

Weaving Nylon Yarn Poses Quill Problem

When weaving nylon fabric, much trouble is encountered on the loom because of the tension required when quilling the bobbin. The tension applied has a tendency to squeeze the bobbin to such an extent that the hole in the bobbin becomes too small to fit the shuttle spindle, and when the bobbin is put on the shuttle spindle it is off center. This condition, of course, prevents the filling from pulling over the end of the bobbin as smoothly as it should, and often results in filling breaks.

Some mill men who have this trouble



. . . . a challenge to all cook-up gums for textile printing

KOVAT swells in cold water to a smooth-textured, long-flowing consistency. It remains stable in the presence of strong alkalies and other chemicals. It produces prints of excellent color value, detail and penetration.

KOVAT is a definite challenge to all types of cook-up gums: *It saves time* — by mixing in cold water in 10 to 20 minutes. Cook-up gums require 3 to 4 hours. KOVAT *saves labor and equipment* — by using an ordinary drum or barrel and a portable agitator. Cook-up gums require a steam-jacketed kettle or other types of expensive equipment. KOVAT *saves storage space* — by being easily mixed in small batches as needed. Cook-up gums require storage facilities for large batches.

KOVAT has proved itself in commercial use by doing a better printing job with lower solids, less gum. It is especially recommended for vat color printing but is also highly efficient for other types of "wash fast" or "commercial" colors applied either by the roller machine or screen methods. Write for full information — NOW!

National also produces: AMBERTEX, a heavy-bodied gum for screen and machine printing; FIBERTEX, for textile finishing; FIBERJEL AC, a warp size for both filament Acetate and Viscose Rayon yarns; FLOJEL, uniform, thin boiling corn starches in all standard fluidities; and HOOSIER Pearl Cornstarch.

Offices: 270 Madison Avenue, New York 16; Boston, Philadelphia, Chicago, Indianapolis, New Orleans, San Francisco and other principal cities. In Canada: Meredith, Simmons & Co., Ltd., Toronto. In Holland: Nationale Zetmeelindustrie, N.V., Veendam.

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STARCHES — AND SPECIALTIES WITH EASILY DEMONSTRATED SUPERIORITY

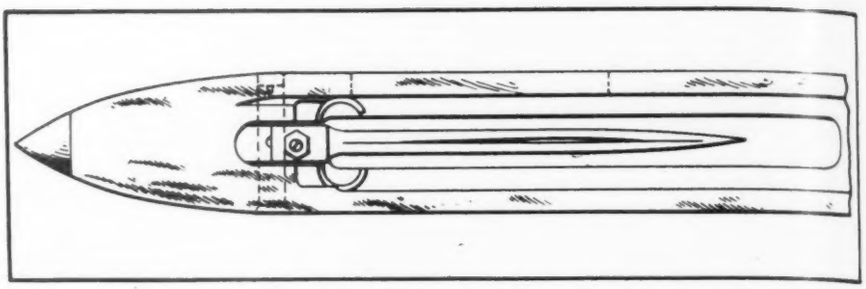
KINKS & SHORT CUTS

(Continued from page 164)

with bobbins ream out the bobbins so that they will fit the shuttle spindle. This practice will make the bobbin shell thinner and more easily affected by quilling tension; and instead of bettering the condition, it makes it worse.

The following procedure is the method I use to fit the bobbins on the shuttle spindles.

Remove the spindle from the shuttle and dress it down on a grinding wheel to the desired diameter. If the spindle is rough from the grinding, polish it on a sanding disc. *(K-347) J. L. Bove, Hazelton, Pa.*

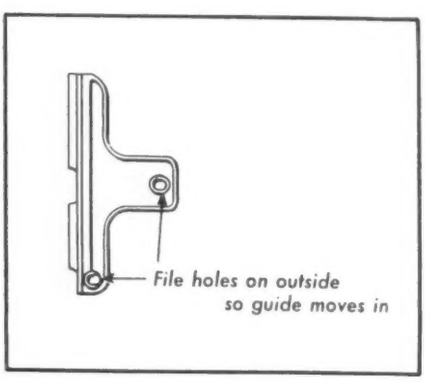


The spindle should be ground with caution and only when a smaller inside bobbin diameter becomes a rule rather than an exception.

Shuttle-Box Play Can Be Reduced

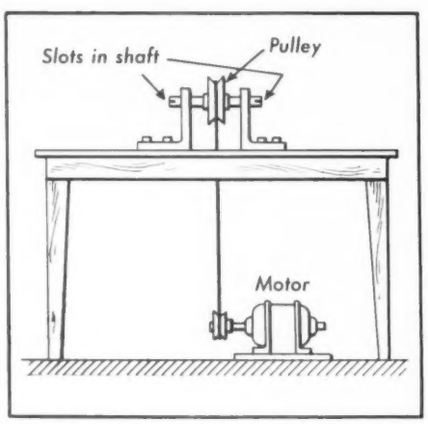
Making frequent box changes on S and W model looms ultimately wears the box grooves and guides. Too much wear allows the boxes to move in and out as much as ¼ in. during running time and often causes flying shuttles. Also, if the box bounces outward as the shuttle enters, the shuttle backs are often given a "washboard" effect, which in turn will ruin the reed. To control shuttle-box play without putting on new guides and new shuttle boxes, and without welding, we use the following method.

Remove the shuttle box from the loom. File the end bolt holes, as shown in the sketch, so that the box can be moved in farther. Using a small hammer, batter the box guides lightly from top to bottom to square them. Place the box in the guide grooves, and work it up and down by hand. If the box does not move up and down smoothly and freely in guides, batter the guides lightly again. Repeat this action until a satisfactory fit is attained. Tighten the bolts and connections. Make one pick for box change and see if the box moves freely. Keep making a few additional picks until all the cells have made changes. If the box moves without binding, put a few drops of oil in the box guide grooves and start up the loom. *(K-277) H. E. Wenrich, Berwick, Pa.*



After moving the box inward, the worn guides can be shaped so that the grooves will have more control over them.

Slots in Turning Shaft Insert or Remove Screws



One end of the shaft inserts screws, the other end removes them.

Mills which find it necessary to put in or remove a large number of screws on harness frames will find that the device shown in the sketch will save much time over using a hand brace or an automatic screwdriver. The device consists of a short shaft slotted at each end and driven by a motor.

To construct the tool, select a table which will place the turning shaft at a height comfortable for the operator to handle the harness frame. In the center of the table mount two *L*-shaped supports about 4 or 6 in. from each other. The supports may be made of cast iron or steel. Drill a hole near the top of each support and secure bearings in the holes.

The shaft to be mounted in these bearings should be about 1 or 1¼ in. in diameter. It should have a square-sided groove cut across each end, and these grooves should be wide and deep enough to receive and hold the top of a standard harness-frame hook.

Place one end of the shaft through one of the bearings, put a band pulley over the shaft, and extend the shaft through the bearing in the other stand. Secure the shaft at the bearings so that there can be no lengthwise movement of the shaft, and also secure the band pulley half-way between the stands.

Mount a motor beneath the table; or if preferred, the turning shaft can be driven from an overhead shaft. Pulleys should be selected so that the turning shaft will operate at 200 to 300 r.p.m.

The screws must be started by hand or by a light tap with a hammer. After starting, place the screw head in the proper end of the turning shaft. The other end of the shaft will remove a screw. *(K-459)*

Wide-Head Loom Beams Require Larger Racks

Some time ago we began using larger loom beams—26 and 28 in. in diameter—and found that our beam racks were not large enough nor strong enough for storing full beams of these sizes. We built new racks similar to the one shown in the sketch and have found them quite sasisfactory.

Cut two pieces of 8-in. channel iron the length desired for the height of the rack, and place them on end with the channels facing each other. Drill holes in the bottom of the channel near each end of both pieces, and cut two pieces of pipe for spacing the channel irons. The pipes should be sufficiently long to hold the channel irons far enough apart to ensure firm rests for the flanges of two loom beams.

Connect the channel irons with tie bolts placed through the holes drillled

More and more worsted mill men are reaping the benefits derived from the use of Proctor Metallic Worsted Cards. It is easy to see the trend to this modern method of carding. At this moment there are *more than 30 complete metallic worsted cards on order, for delivery to eight progressive worsted mills.* Mill men are realizing, from production records set in other plants, what the Proctor metallic card can do in their plants. Actual production figures, compiled by an unbiased agency in one mill where Proctor metallic cards replaced older machines, reveal output increases of 185% per card. Average production per card, per hour jumped from slightly more than 32 pounds to nearly 93 pounds. Astounding? The survey further revealed that not only did production increase materially, but quality of carded wool was actually improved. For a greater yield of top and other salable carded wool, from the same amount of scoured wool, the record of Proctor metallic worsted cards is unequalled. Write for complete details, giving us as much information as possible, about your carding problem.

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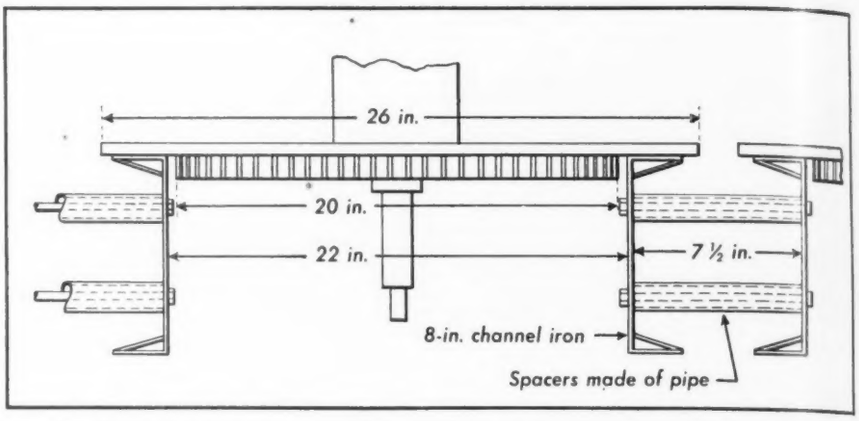
PROCTOR & SCHWARTZ INC • PHILADELPHIA 20 • PA.

KINKS & SHORT CUTS

(Continued from page 166)

in the bottoms of the channels. The tie bolts should extend through spacing pipes between the two channel irons. When the bolts are tightened, the channel irons are held rigidly together. Lag screws placed in the floor will hold the assembly in its proper place. This rest will support one side of two loom beams.

Make another rest in the same manner, and place it far enough from the first rest so that the flange of the loom beam will rest firmly on both of them but will allow the beaming teeth to be out of contact with the channel iron. For a 26-in. diameter head, having a beaming gear 20 in. in diameter, we place the rests so that there will be a 22-in. space between them. *(K-457)* *Robert V. May, Sylacauga, Ala.*



The channel-iron rests can be spaced to accommodate any diameter head of loom beam.

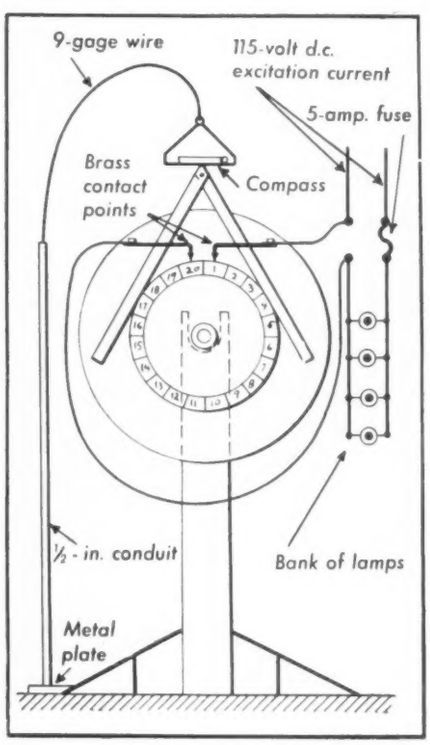
Compass Needle Points Reversed Coil

One of the most perplexing electrical maintenance problems I've ever had was that of locating a reversed coil in an armature that had been held as a spare for an important drive motor and had never been in service. Checking with voltmeter and telephone head-set failed to disclose anything wrong. The problem was finally solved when someone suggested the compass idea for checking the polarity of the coils. In this case, one coil was reversed.

The method used is as follows: D.C. current is fed through the armature from a bank of 16 candle-power carbon lamps from which any required amperage may be drawn for excitation purposes. The V-shaped contrivance, see sketch, is fashioned from wood or plastic, and hinged at the top by means of a wing nut and bolt. The contact points of spring brass are pressed through holes drilled through the two members of the V, as the accompanying sketch indicates.

The compass is supported from a No. 9-gage-wire loop sweated into a section of ½-in. conduit which, in turn, is threaded into a metal plate. This "bird-cage" support ensures vibration-free compass operation.

Excitation current is applied to the bars connected to the coils under the compass. Let's say the needle is deflected to the left when bars No. 1 and No. 2, and later No. 2 and No. 3, are contacted, there being two coils per slot. Proceed to turn the armature slowly, bar by bar. When the reversed coil comes up, the needle of the compass will swing to the right. *(K-460)* *Paul C. Ziemke, Oak Ridge, Tenn.*



The compass needle will swing in the same direction at each properly wound coil and in the reverse direction if the coil is wound in reverse.

Pulled-in Filling Reduced by Devices

Pulled-in filling has often been a source of trouble in our weaving department. To combat it, we adopted the two ideas explained here and illustrated with the accompanying sketches. One of the ideas is used on bobbin-changing looms using crepe filling, and the other is used on shuttle-changing looms.

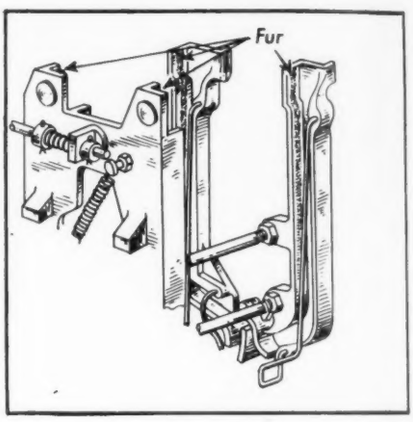


Fig. 1. Rabbit fur is glued to the inside of the metal guides.

Bobbin-change loom. The loom-model we have uses a magazine having two cells, and each cell is equipped with a metal rod which acts somewhat as a spring to hold the bobbins in place against the guides as they move down to the giveway.

We found that by gluing a strip of rabbit fur about 1 to 2 in. wide to the inside of the guides, so that the bobbins rested against the fur instead of the metal, the loose filling yarn which frequently worked off the end of the bobbins was held by the fur. See Fig. 1. Thus, the fur prevented a bobbin from pulling in a bunched end of loose yarn when it moved into the shuttle. *(K-303)*

Shuttle-change loom. On this model loom, the bobbin is not in contact with the guide, as above; but the shuttle itself is guided down the cell and into picking position. Therefore, any loose ends of filling could not be controlled with fur glued to the guide.

We devised a holder for the filling

When cotton is picked, it loses its "staff of life" and, quite naturally, dies. When the sunlight and food from the earth are taken away, the tube of the cotton fiber collapses . . . becomes less resilient, weaker, loses its luster.

If it has EYE APPEAL—it has BUY APPEAL!

Dixie *brings the fiber back to life*

Through Dixie's mercerizing process, the tube of the dead fiber is *literally opened up again* and the sheen restored. Having thus staged a "snappy come-back," it stays revived, becomes flexible, soft and lustrous.

Quality garments, made of Dixie Durene, are well known for their attractiveness. Such apparel is *strong* and withstands many washings . . . holds its shape, for comfort and lasting good looks.

DIXIE MERCERIZING CO. CONTROLLED MANUFACTURE DIX'E CHATTANOOGA, TENN.

This is another reason why consumers everywhere demand products with eye-appeal — products made of dependable Dixie Durene.

Made of Durene multi-ply mercerized combed cotton yarn
4 WAYS BETTER than ordinary cotton yarns
EXTRA COMFORT ---more absorbent
EXTRA STRENGTH ---longer wear
EXTRA QUALITY ---lasting lustre
EXTRA SERVICE ---easy to wash

Dixie MERCERIZING COMPANY, CHATTANOOGA 1, TENNESSEE

KINKS & SHORT CUTS

(Continued from page 168)

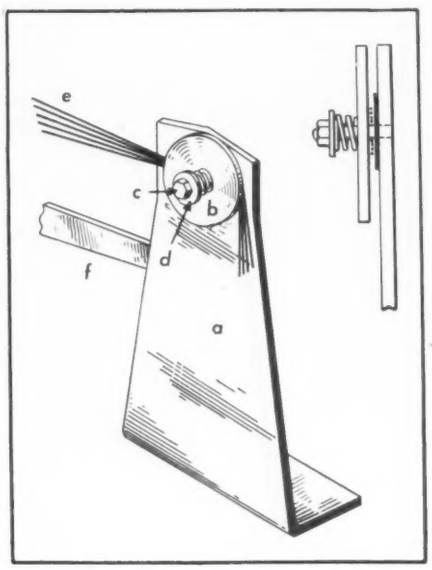


Fig. 2. Additional support is given the stand by arm f, also fastened to the loom.

end, as illustrated in the sketch at Fig. 2.

A metal stand, a, was fastened to the loom side near the shuttle box. Disc *b* was secured to the stand with bolt c. Beneath the bolt, and held by it, is a spring which presses against washer *d* to exert pressure against the disk. This pressure holds the disk tightly against a hard-rubber washer behind the disk. Filling ends e are placed between this rubber washer and the disk.

As the shuttles move down the cells into picking position, the filling ends are held taut. Lively filling is straightened and bunched ends are prevented from going into the cloth when the shuttle is picked the first time. *(K-304)*

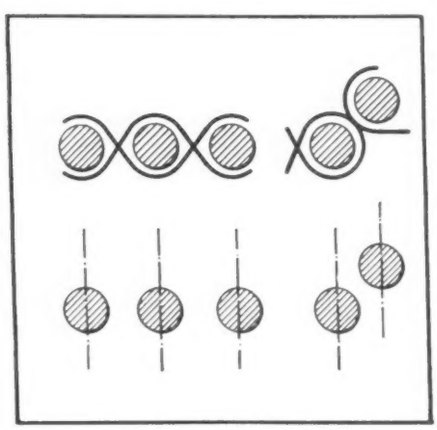


Fig. 2. The above cross section shows the position of filling yarns woven under conventional tension, left, and under extra tension by use of the cross-bar cradle.

Extra Loom Pickage Attained by Cross Bars

Additional pickage in weaving, amounting to 8 to 12% (see "Germans Trailed U. S. in Throwing and Weaving" elsewhere in this issue), was attained by the Germans by the use of a cross-rod cradle (*Kreuzwalke*) which applied extra tension to one-half the warp threads, alternating the warp half of each pick.

The accompanying sketches illustrate the use of the device.

The first sketch shows the cross rods *f* and *g* in one of the two extreme positions of the cradling action caused by the turning of eccentric *k*. As *k* makes one-half a revolution, lever *l* acts upon cradle lever *h* in a pivoting action which causes *f* to lower and *g* to raise.

The second sketch is the same as the first, except that the details of the cradle mechanism have been left out to show more clearly the action of the rods upon the warp threads. Alternate warp threads—comprising half the warp sheet and designated *d*—pass under rod g and over rod *f*, thus subjecting half the warp to additional tension. The other half, designated e, is unaffected by the rods until the pick has been completed and the filling beat up in the cloth.

The third sketch shows the rods in neutral, or level position, with the reed back and the shed open.

The fourth sketch represents the other extreme position of the cross-rod cradle. Rod *f* being down and rod g up, extra tension is placed on warp-half e, while warp-half *d* is unaffected.

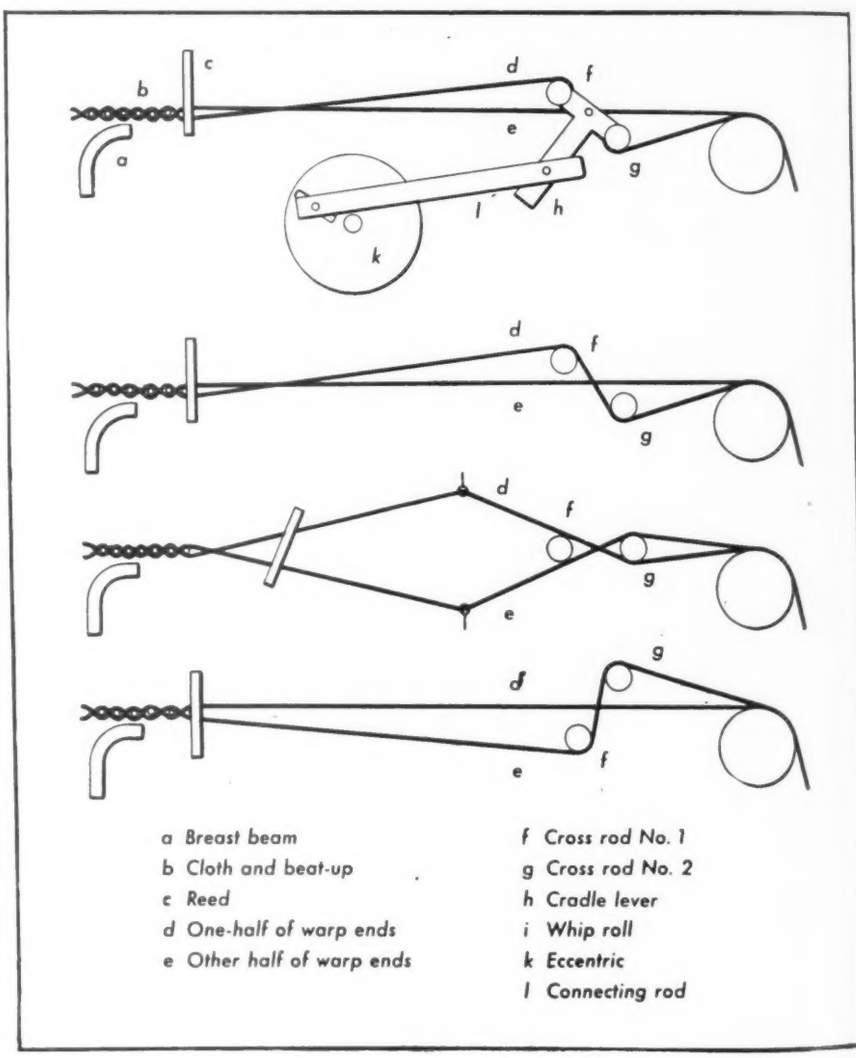
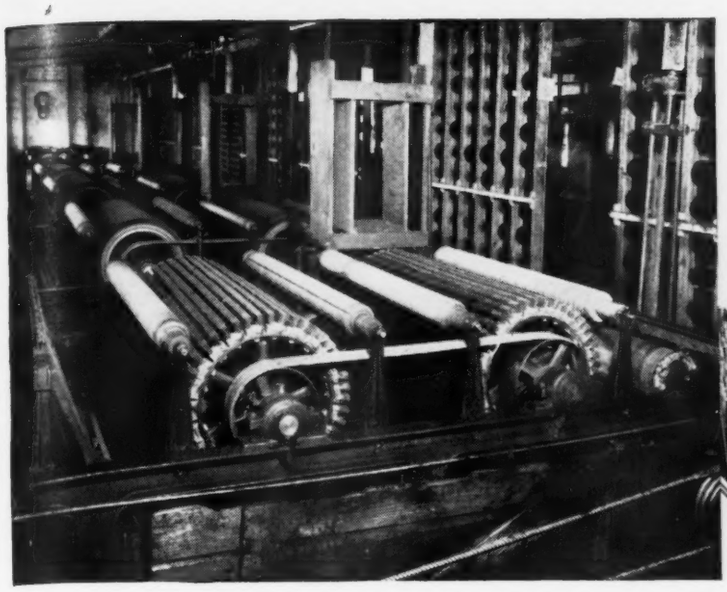
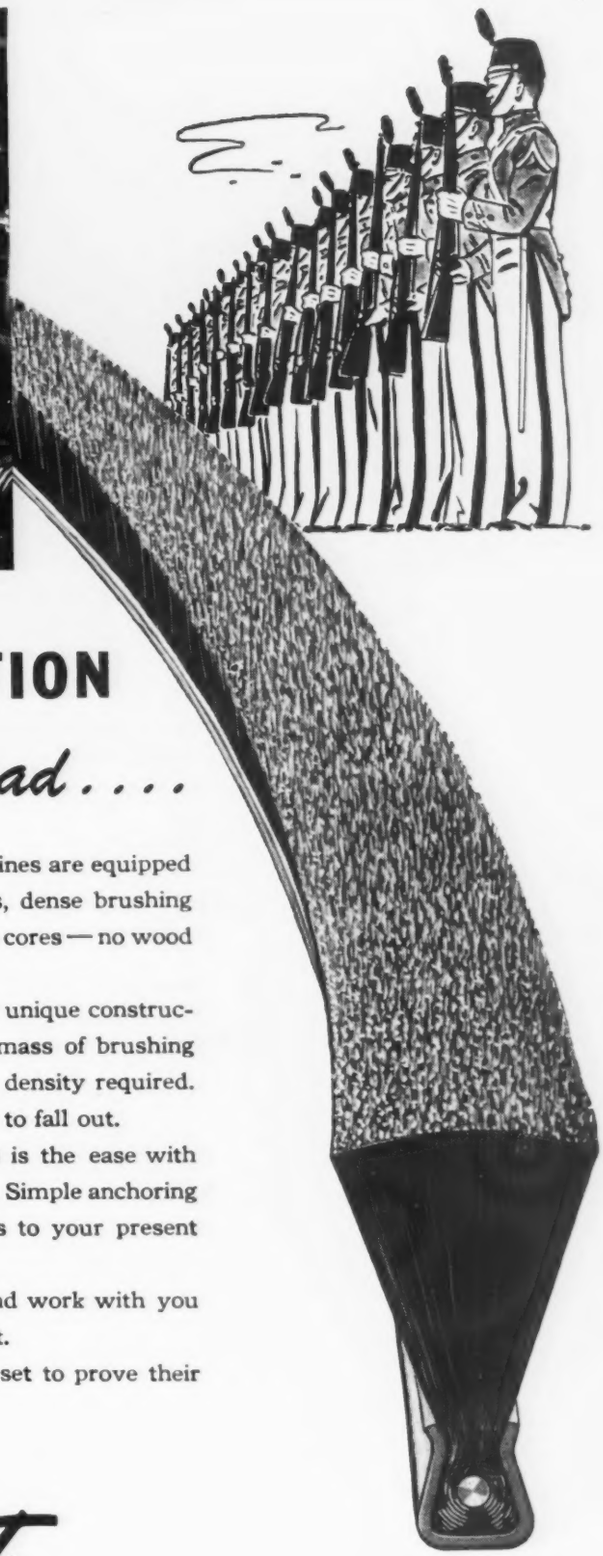


Fig. 1. The cross-rod cradle places extra tension on alternate warp threads with each pick.





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means better-dressed thread....

You get better, more uniform thread-dressing when your machines are equipped with Fuller-Gript Brushes. They provide a solid, continuous, dense brushing surface. There are no gaps or tufts to allow threads to ride on cores — no wood lags to stop ventilation.

Fuller-Gript Brushes offer such advantages because of their unique construction. A continuous, solid strip of steel is formed to grip the mass of brushing material in an uninterrupted, gapless formation of the exact density required. Neither atmospheric conditions nor chemicals can cause tufts to fall out.

Still another important advantage of Fuller-Gript Brushes is the ease with which your own maintenance men can install or replace them. Simple anchoring devices attach the preformed spiral, all-metal-backbone strips to your present wood cores.

The Fuller Industrial Representative will be glad to call and work with you on the application of Fuller-Gript Brushes to your equipment.

Or phone, write or wire us your specifications for a trial set to prove their better performance.

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BUILT-TO-ORDER BRUSHES FOR YOUR EQUIPMENT

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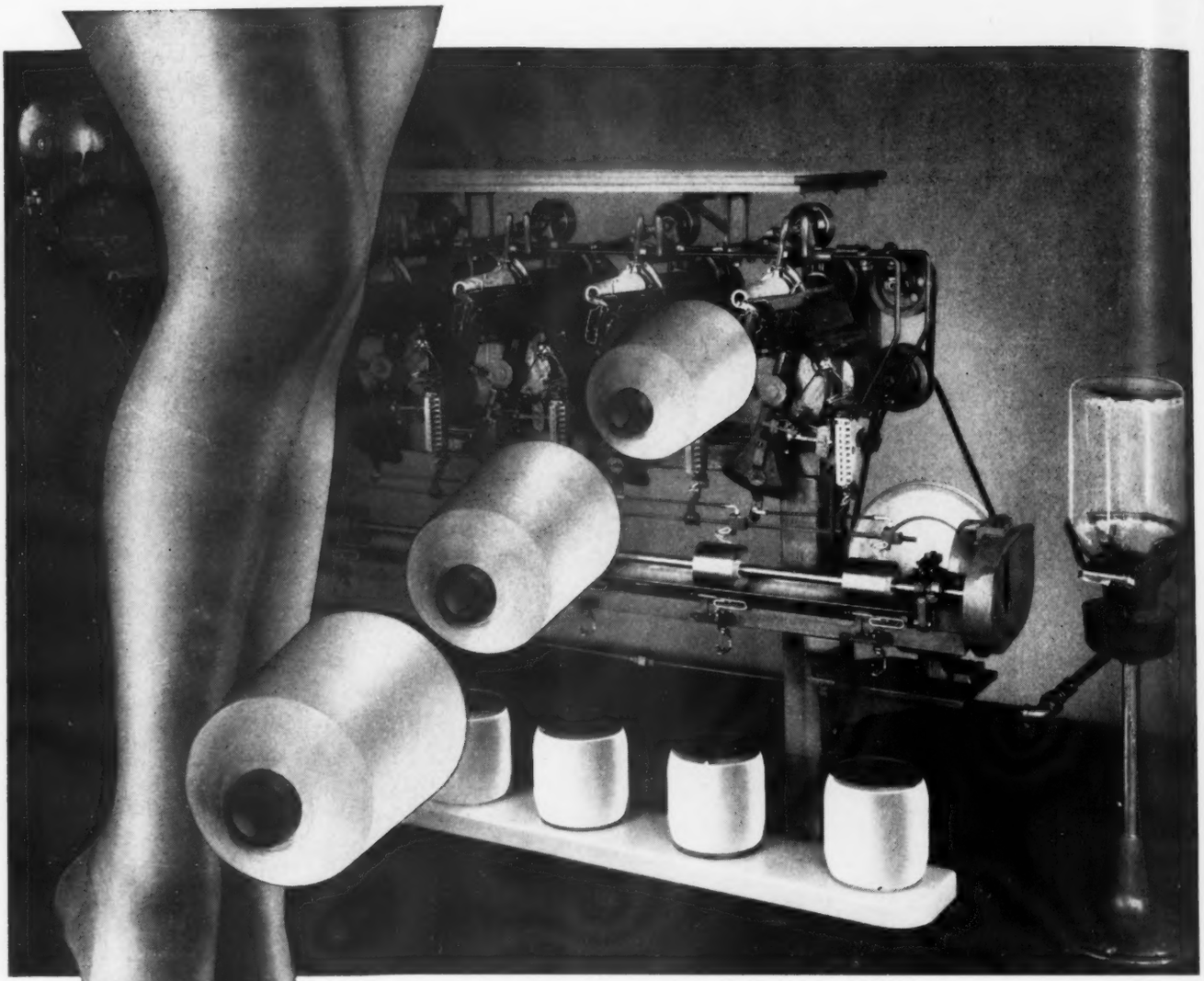

THE MACHINE THAT SIMPLIFIES PINEAPPLE CONING OF NYLON

Universal Sizing Tubes of nylon, wound on the No. 250 machine, go directly to the No. 50 machine (without an intermediate redraw operation) to be converted into pineapple cones for knitting.

The No. 50 machine with Pineapple Coning Attachment has been designed to provide the simplest, most trouble-free arrangement of handling the yarn.

Tension is minimized by the straight thread line from supply tube to oiling roll . . . fewest possible contact points . . . slow spindle start . . . automatic release of tension as package diameter increases . . . and the new Roller Bail which revolves with the yarn at the delivery point.

Emulsion roll speed is uniform, and the amount of oil pickup is controlled from inside to outside of the cone by an automatic means of lengthening the contact of yarn with the roll to compensate for increase in yarn takeup speed. Tension and pressure are easily controlled to provide the package formation that knitters prefer.

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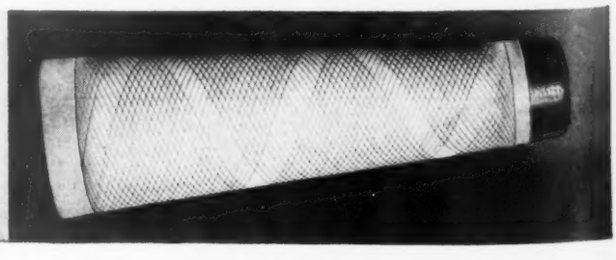
Universal Winding Company, Providence, Boston, Philadelphia, Utica, Charlotte, Atlanta. **See catalog in TEXTILE WORLD YEARBOOK.**

23-54

MORE THAN 90% OF ALL SYNTHETIC FILAMENT YARN ON CONES IS PRECISE-WOUND ON THE FLEXIBLE 50

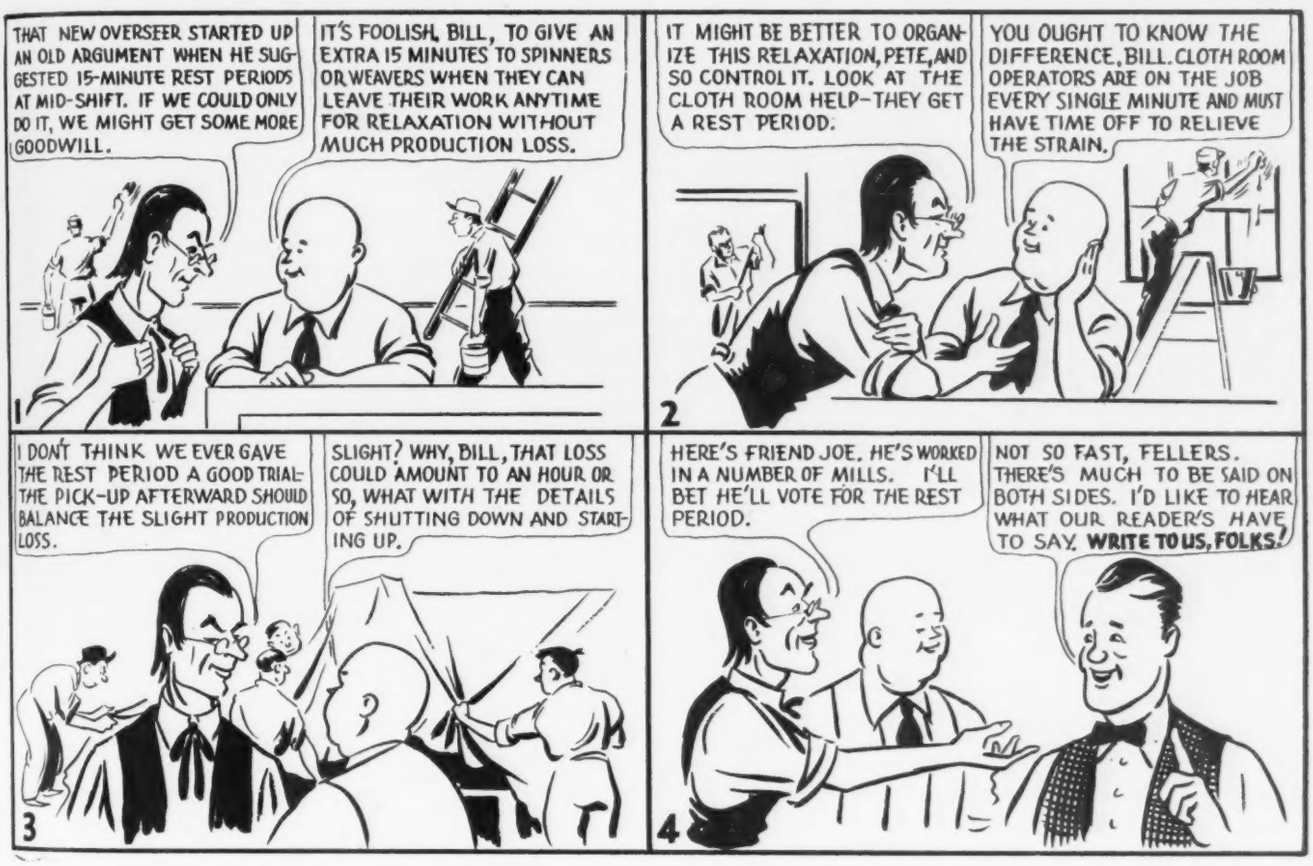


LETTERS TO Pete & Bill, discussing material in this department, are paid for when published. Suggestions for the Pete & Bill dialogue will also be paid for if used. If these pages interest you, contribute something to interest others. Address PETE & BILL, Textile World, 330 West 42nd St., New York 18, N. Y.

Pete & Bill

Rest Periods and Production

Are mid-shift rest periods wasteful from production standpoint, or does the rest result in better work?


THAT NEW OVERSEER STARTED UP AN OLD ARGUMENT WHEN HE SUGGESTED 15-MINUTE REST PERIODS AT MID-SHIFT. IF WE COULD ONLY DO IT, WE MIGHT GET SOME MORE GOODWILL.
IT'S FOOLISH, BILL, TO GIVE AN EXTRA 15 MINUTES TO SPINNERS OR WEAVERS WHEN THEY CAN LEAVE THEIR WORK ANYTIME FOR RELAXATION WITHOUT MUCH PRODUCTION LOSS.
1
IT MIGHT BE BETTER TO ORGANIZE THIS RELAXATION, PETE, AND SO CONTROL IT. LOOK AT THE CLOTH ROOM HELP—THEY GET A REST PERIOD.
YOU OUGHT TO KNOW THE DIFFERENCE, BILL. CLOTH ROOM OPERATORS ARE ON THE JOB EVERY SINGLE MINUTE AND MUST HAVE TIME OFF TO RELIEVE THE STRAIN.
2
I DON'T THINK WE EVER GAVE THE REST PERIOD A GOOD TRIAL—THE PICK-UP AFTERWARD SHOULD BALANCE THE SLIGHT PRODUCTION LOSS.
SLIGHT? WHY, BILL, THAT LOSS COULD AMOUNT TO AN HOUR OR SO, WHAT WITH THE DETAILS OF SHUTTING DOWN AND STARTING UP.
3
HERE'S FRIEND JOE. HE'S WORKED IN A NUMBER OF MILLS. I'LL BET HE'LL VOTE FOR THE REST PERIOD.
NOT SO FAST, FELLERS. THERE'S MUCH TO BE SAID ON BOTH SIDES. I'D LIKE TO HEAR WHAT OUR READER'S HAVE TO SAY. WRITE TO US, FOLKS!
4

Letters From Readers

Urges Rewards for the Faithful

"New Slant on Favoritism"
(Pete & Bill, Jan. 1946)

Dear Pete & Bill:

Management should try to reward faithful employees who kept at their jobs in spite of higher-paid openings in war plants. General employee morale is more important than giving the better work assignments to an occasional, more efficient man who deserted the mill for a better paying, temporary war job.

Men who have become used to conditions in the average war plant job will certainly not make exemplary workers so that management's decision should be easy in these cases. (PB 402)

Reciprocity in Exchange of Ideas

"The Mill Door—Closed or Open?"
(Pete & Bill, Feb. 1946)

Dear Pete & Bill:

Efficiency in plant operation is a vital factor in controlling costs and increasing profits. It therefore can be seen that the sooner more efficient methods can be installed, the sooner the mill benefits thereby.

Reciprocity agreements should be made with mills accepted as being highly efficient organizations. With such agreements in effect a supervisor on a visiting tour can easily compare these outside operators' production methods with his own. Any processes or devices which others have adopted and which definitely prove superior to his manufacturing methods can promptly be installed upon his return to the mill. It must be realized that if a plant has developed on ingenious system for a most efficient operation, it cannot be strictly confined to its originators since other

supervisors are welcome to inspect such mechanisms. It can be expected that such a mill's supervisors in turn will benefit from their observations when on an outside tour themselves.

Competition between mills keeps the wheels of industry geared to a higher pitch. New ideas are constantly being developed by continuous research. By adoption of an interchangeable system of ideas it allows for better performance at lower cost for mills accepting this program. Management can therefore look to a greater and better output thanks to Yankee ingenuity. (PB 401)

Eliminate Petty Jealousies

"New Slant on Favoritism"
(Pete & Bill, Jan. 1946)

Dear Pete & Bill:

While petty jealousies should be eliminated from the plant, I believe favors and favoritism should be shown to the worker who continued in the plant during the war as against the employe who sought higher wages in war plants throughout the country.

"A friend in need is a friend indeed" is an adage worth remembering and heeding under the circumstances—and, were I the boss at the plant, I would make a preference. At the same time I would exert every effort to make matters as agreeable as possible, keeping the interest in top production in mind. (PB 403)

The Door Should Be Open

"The Mill Door—Closed or Open?"
(Pete & Bill, Feb. 1946)

Dear Pete & Bill:

The mill door should never be closed. All supers should get together and talk things over because there are too many patents coming up nowadays. When it comes right down to things, we all have to copy either one way or another. I agree on visiting other mills and welcome any visitors, who are smarter than I am. (PB 404)

Encourage the Super-Efficient Employee

Dear Pete & Bill:

When an employee has the urge to offer to run an added portion of a job (some I have seen take as much as 75% above normal work load) by all means let him, and then PAY him for it without any dockage or reduction of rate. That is the only just way it can be done.

If an operative is super-efficient and is industrious enough to want to run his job or a bigger productive job, provide it. (PB 192)

Books of Interest

Surface Tension and the Agents Affecting It

SURFACE ACTIVE AGENTS, by C. B. F. Young and K. N. Coons; Chemical Publishing Co., Brooklyn 2, N. Y.; 382 pages, $6.00.

The theoretical aspects of surface tension and its application to various industrial fields are treated. The authors discuss, besides the results of others, the conclusions drawn from their own research work in various industries. They present useful information concerning the origin, effect and utilization of surface tension phenomena. The transfer of knowledge from one field to another may help to ease the problems of research, or provide the germ of an idea for improving processes.

Methods for the determination of surface tension are described and apparatus used are illustrated. A comprehensive alphabetical list of wetting and other surface active agents, giving also the chemical composition, the industrial use as well as name and address of the manufacturers, will prove of great value to chemists and other workers of many industries.

The rest of this book deals with diverse branches of industries in which surface active agents are used and contains many typical formulas which will facilitate the formulation of emulsions and other products based on the utilization of surface active agents. Numerous illustrations, tabulated data, a bibliography, and chemical and mathematical equations round out this handy volume.

Ornament from Victorian Viewpoint

A HANDBOOK OF ORNAMENT, by FRANZ Sales Meyer; reissue by Wilcox & Follett Co., Chicago; 548 pages, $2.50.

This volume contains 300 plates with about 3,000 illustrations of design elements and applications of design to a wide variety of objects. Although very little of the material is directly textile, the basic classic designs, both geometric and natural, are given and might prove of inspirational use to textile designers. The viewpoint toward decoration is Victorian, but this does not detract too much from the use of the book as a repository of much information on design grouped by classes and by objects decorated.

Industrial Uses of Soap

SOAP IN INDUSTRY, by Georgia Leffingwell and Milton Lesser; Chemical Publishing Co., Brooklyn 2, N. Y.; 204 pages, $4.00.

This is a practical treatise which will provide manufacturers, chemists, workers, salesmen and students with many useful hints as to the utilization of soaps in manufacturing processes. In many industries, special soap-like products are employed for specific tasks. These products are based on fats and oils, and are treated separately in discussions of individual industries. Separate chapters cover "Textiles," "Dyeing and Printing Textiles," and "Wool Production." The authors have included numerous formulas for utilization of industrial soaps.

Manual on Counseling

COUNSELING WITH RETURNED SERVICEMEN, by Carl R. Rogers and John C. Wallen; McGraw-Hill Book Co., New York 18, N. Y.; 160 pages, $1.60.

A complete yet compact manual to aid counselers of returned servicemen and servicewomen, this book presents a relatively new set of principles in counseling with detailed methods of application. The authors define counseling as a process whereby the serviceman talks out his problem in an accepting and permissive atmosphere maintained by techniques used by the counseler. The serviceman thus comes to see his problem in a new and truer light and visualizes more clearly the steps he can take independently toward its solution. Illustrative conversations between counseler and client are given in order to indicate the pitfalls and the means whereby the skillful counseler can avoid them.

Postwar Taxes

YOUR COST OF POSTWAR TAX PROPOSALS, by Clinton Davidson, Jr.; Harding College, Searcy, Ark.; 76 pages, $1.00.

This book is written by the director of the division of economic research of Harding College's department of popular education. He analyses three programs of government spending: the thrift budget, the thriftless budget, and the spendthrift budget, and recommends a tax program.

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ALUMINUM CHLORIDE SOLUTION?

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When your research, product development, or production programs indicate the need for an inexpensive, water-soluble aluminum compound, investigate the potentialities of Aluminum Chloride Solution. As a raw material or intermediate it may prove the key to your process problem. Helpful technical data and other pertinent information available . . . without obligation . . . from the nearest General Chemical Sales & Technical Service Office below.

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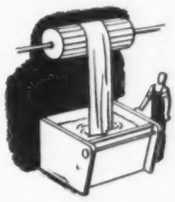
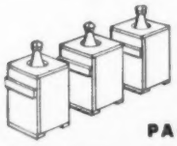


IN TEXTILE MANUFACTURE . . .
For carbonizing wool

IN COSMETIC MANUFACTURE . .
As an astringent in preparation of deodorants



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Round Table

FOR EXCHANGE OF IDEAS

The Round Table is designed to supply a meeting place where mill men can discuss problems among themselves. It is open to all readers for discussion of subjects relating to mill management and operation. Names of contributors to the Round Table will be held confidential if so requested, but sign contributions with your real name and address as evidence of good faith and to permit payment for items published. Address contributions to : Editor Round Table, Textile World, 330 West 42nd St., New York 18, N. Y.

Full-Fashioned Knitters Need Better Equipment

Full-fashioned knitters are all, more or less, in the throes of changing over their machines from knitting 75- and 100-den. rayon to knitting 30-den. nylon, and most of them are lacking in sufficient preboarding capacity and quality.

This production problem is further aggravated by the fact that it is necessary to use yarn prepared by different throwsters, many of whom do not have the proper sizing machines or proper control methods.

In an effort to combat this second condition, many mills are now turning to yarn sized to knit dry, while others are knitting damp on 42- and 45-gage, old-type machines.

The modern plants equipped with 51-gage machines and proper humidity controls for maintaining any kind of "weather" needed are in luck, and those operating "run of the weather" mills will continue to have their headaches until better machines, controls, and yarn are available. *(R-246) Warren P. Seem.*

Reader Comments on Mr. Bendigo's Appointment

Following are abstracts of letters received by C. W. Bendigo subsequent

Financing EFFICIENCY

(AN ACTUAL CASE FROM THE FILES OF MEINHARD, GREEFF & CO., INC.)

In 1936, the owners of a woolen mill reached the crossroads. They either had to spend their liquid capital for the purchase of efficient machinery, or competition would force them out of business. To re-equip, however, would deplete their working capital. They were doing $750,000 per annum.

They explained this to Meinhard, Greeff. They showed that ordinary banking facilities could not help. They wanted assurance that they could make large machinery purchases and at the same time have enough liquid capital to do an ever increasing volume. Meinhard promised and delivered full cooperation. During the past ten years, they have spent $500,000 on machinery and today, they are doing three times as much business and can face the post-war period with confidence.

A typical example of Meinhard's constructive policy in financing . . . based upon common sense, not ironclad dictum.

Meinhard, Greeff & Co., Inc.

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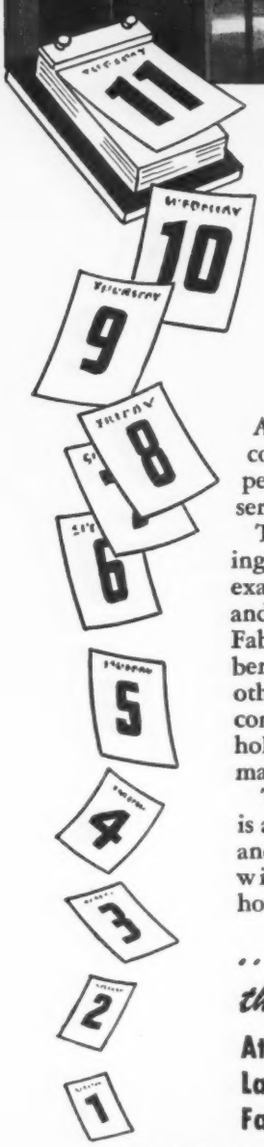
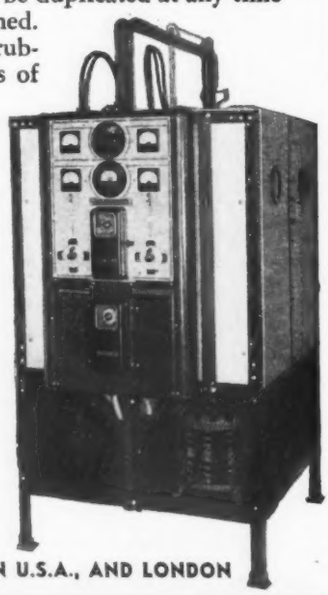


A few days in the WEATHER-OMETER *. . . . equals years of outdoor exposure . . .*

A few days exposure in the Weather-Ometer with controlled cycles of light, water spray, selected temperature and humidity, equals years of outdoor service.

The Atlas Weather-Ometer brings these weathering conditions right into your laboratory where exact tests of materials can be duplicated at any time and reliable results obtained. Fabrics, finishes, paints, rubber, plastics, and hundreds of other products can be accommodated in suitable holders adapted to each material.

The Weather-Ometer is automatic in operation and can be left running without attention 24 hours a day.



. . . Used all over the world

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Launder-Ometers
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SALES OFFICES IN PRINCIPLE CITIES IN U.S.A., AND LONDON

ATLAS ELECTRIC DEVICES CO.
361 West Superior Street, Chicago 10, Illinois

to the announcement of his appointment as editor-in-chief of TEXTILE WORLD (January, page 93):

I was very pleased to read Mr. Fowle's announcement. A wise choice. You are certainly well qualified. *(R-256)*

The writer has appreciated the way in which you have handled all matters, personal- and company-wise, and feels that McGraw-Hill has made a splendid selection in appointing you editor of this fine publication. *(R-257)*

I know of no one better qualified to handle this important job, as you have had unusually broad training in the industry. *(R-258)*

I know you will handle the position excellently. With your thorough knowledge of the textile industry, especially throughout the South, you are in a position to visualize intelligently the entire situation. *(R-259)*

There is just no holding a boy like you down. Of course, anyone having the complete and thorough knowledge of textiles and everything that goes with it that you do, and the AA-1 personality you have always had, is just bound to get right to the top. Believe me, I don't know another person who has as many friends as you have. *(R-260)*

I have noticed the splendid work you have been doing, and several of my friends have also mentioned it to me. As a matter of fact, since Ed Fowle became publisher, there has been considerable improvement in the magazine; and he evidently has good judgment in the selecting of his men and the promoting of the deserving, as is evidenced in your case. *(R-261)*

I just couldn't resist the temptation of telling you how happy it made me to read Mr. Fowle's write-up appointing you editor. You were a splendid mill man and you know exactly what we are all looking for in our magazine. *(R-262)*

Congratulations on the recent promotion. Really you deserve it. The magazine is far ahead of what is used to be. *(R-263)*

I am delighted to see a North Carolinian assume this important job, and I congratulate the publishers on their excellent judgment. I am sure that with your fine background and experience you will measure up in every way to this opportunity. *(R-264)*

Foremen's Committee Reduces Waste Loss

At one of the plants in which I worked, the waste figure for the previous year was high—130,000 lb., or 3% of the stock processed. I formed a waste

Perfection is a lot of little things

The creative artistry of a talented designer plus the skilled needlework of a fine tailor was not enough to achieve the rare perfection of this exquisitely tailored sport coat. For in the fashion field, perfection is made up of a lot of little things.

That explains why so many of America's leading mills, converters, finishers and dyers have turned to Colgate-Palmolive-Peet for high-quality wetting, fulling, scouring and dispersing agents.

There is a C.P.P. soap or synthetic detergent for every type of fabric—for every processing problem. Ask your local Colgate-Palmolive-Peet representative for details. Or, write to our Industrial Department.

COLGATE WHITE SOAP FLAKES
ARCTIC CRYSTAL FLAKES
BADGER FLAKES
ARCTIC SYNTEX "A" AND "T"
COLGATE FORMULA 10

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1049	1.17	1.98	7.68	12.28	30.70c
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In the face of rising prices, Air Express rates have been slashed 22% since 1943, saving business millions of dollars. And rates include special pick-up and delivery in all principal U. S. towns and cities — with fast, co-ordinated air-rail service between 23,000 off-airline points. Service direct by air to and from scores of foreign countries in the world's best planes, giving the world's best service — at lowered cost.

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committee composed of one foreman from each of the three shifts in order to have at least one person who was waste conscious in the mill at all times. The committee served for three months, and a new committee was then appointed. I tried to induce one group to make a better record in reducing waste than its predecessor had in order to work up a little competition. The first year showed good results; waste dropped from 3% to about 1½%. We realized a saving of 60,000 lb. of waste, worth approximately $60,000. *(R-239)* A. E. Kennedy, *Lowell, Mass.*

Rayon From Jute Is Indian Prospect

In an effort to build up a rayon industry in India, the government is considering the use of jute as a source of cellulose. The cellulosic viscosities of jute products are higher than those of wood-pulp products; and because of this and the high alpha-cellulose and low ash contents, it is thought that this form of cellulose may be desirable for the manufacture of viscose rayon. *(R-185)*

Chemicals For Felt Developed by Germans

Study of German production of non-woven or compressed woolen felt has revealed that some progress was made during the war in the use of substitute fibers and chemicals but no significant advances in machinery or manufacturing processes.

Results of his Army-sponsored mission to investigate German felt manufacture were reported by Raymond R. Stevens, research director for The Felters Co., before a recent New York meeting of the Felt Assn., Inc.

"A synthetic compound, Medialan A (a condensation product of oleyl chloride and the sodium salt of sarcosine) made by the I. G. Farben company was used in one large mill to replace both soap and acid milling of industrial felts. The felt was fulled down by this means to a greater density than was obtainable by soap alone.

"A synthetic protein fiber (Tiolan) was used by all German felt manufacturers to replace wool in all-wool felts to the amount of 20 to 40%. The use of this fiber was restricted principally to the non-woven woolen felt industry to extend the limited amount of natural wool available in Germany.

"In one mill the investigation disclosed: (1) the use of a wire-brush napper on the backs of slipper felts to stimu-

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YEH--BUT IT WAS A TERRIBLE SHOCK! THEY JUST TOLD HIM THAT WE'RE OUTA SOL-SPEEDI-DRI AND THEY FERGOT TO ORDER SOME!
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A crying matter? Sure . . . for when floors become oil- and grease-soaked . . . when their surfaces become ice-slick and dangerous . . . it's *time* to cry for SOL-SPEEDI-DRI, the oil-thirsty absorbent!

SOL-SPEEDI-DRI is a white, granular substance that soaks-up oil- and grease-deposits as a sponge soaks-up water. Just spread it around . . . and immediately, you've got a magic carpet of safety underfoot . . . no slipping or falling with SOL-SPEEDI-DRI on the job. Sweep it up with an ordinary, stiff broom . . . and your floors are bright and safe.

SOL-SPEEDI-DRI puts economy in any mill on a firm foundation. Accident rates go down . . . productive time goes up . . . manpower is saved for other jobs. It works while you work . . . in safety!

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late a fuzzy, raised-nap effect for the inside of slippers; (2) the development of chinchilla effect by a dry-platten hardening of a raised nap on light-weight, all-wool, clothing felt; and (3) the use of Palatine-type, fast-dyed, bright-colored wool in the face only of slipper felts."

The report recommended that special chemicals developed in Germany during the war by the I. G. Farben company and found useful for processing felt be manufactured in this country. Mill-trial samples of these chemicals may be available for experimental use within a few months. *(R-237)*

Ammoniated Potash Used For Scouring Wool

In answer to question 9080 [TEXTILE WORLD, January, page 172] on bleaching wool with ammoniated potash, the answer is definitely that it cannot be done. Some years ago the writer was employed as chemist by a textile soap firm, and some of its specialty products contained ammoniated potash and similar compounds. These products were sold as scouring agents because of their liberation of ammonia when the salts were dissolved in water.

Instead of ammonium carbonate, which is somewhat unstable, 10% to 15%-of lightly calcined ammonium sulphate was used. This chemical was mixed with either potassium carbonate (pearl ash) or sodium carbonate (soda ash). When such compounds are dissolved, the ammonia is liberated; but most of it passes off in the atmosphere within a short time. Too much ammonium sulphate made working conditions objectionable, and care was used not to add too much. Also, ammonium sulphate at that time cost a great deal more than soda ash.

Ammonium hydroxide has some value as a detergent, but economically it does not compare with other alkalies. It is not a bleaching agent, although it is sometimes used as a bleaching assistant with peroxides. *(R-238)*

Waste of Water Should Be Avoided

Though large quantities of water are used in all textile plants, its cost is a factor not watched closely enough in many mills.

In many plants there is greater waste of water in cleaning operations than at any other point. Impressing upon employes that water does cost money can help to eliminate deliberate waste in its use. Such things as failing to turn off pumps, taps, or valves when not in use;

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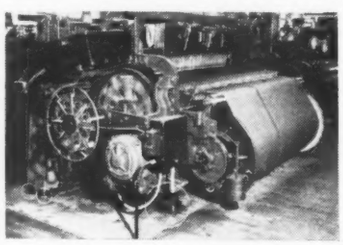

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permitting tanks to overflow; or failing to turn off a hose are important causes of waste of water. Money can be saved by continually watching these causes. *(R-240) Ernest W. Fair, Bristow, Okla.*

Converter Agreement Aids Developing Samples

Our experience in making sample pieces for the converter (see TEXTILE WORLD, Dec. 1945, page 4) proved to be an unsatisfactory way of trying to secure business because it was so easy for the converter to change his mind. Having been put to very little expense in connection with the development of the fabric, he could throw the sample piece on the shelf and forget it.

We came to the conclusion that the converter in some way should be made a partner in the development of the samples. We decided not only to submit our own samples in the gray, but also to state the price per yard at which we would sell the cloth. If the converter were not genuinely interested, we did not hesitate to withdraw the sample and solicit elsewhere. If he were interested, that particular pattern was made only for him under the provision that he must place an order for one set, or about 400 pieces, in order to obtain the cloth. In this way, the converter became financially interested in the transaction; and it was up to him to find a market for the goods. Shifting some of the financial responsibility in this way eliminated criticism at the start of the transaction.

When the converter had his own idea for a fabric, it was given the same careful consideration as our own designs; and the sample-piece transaction was put on the same basis.

We were satisfied that the arrangement was fair, but it was not always an easy matter to find a customer who would agree to the conditions. We had to accept that risk in order to transact business our way; and over a long period of time, the method proved successful. *(R-234)*

Language of the Mill Is Important in Training

Every industry, and sometimes every plant, has a language peculiar to its own working force; and terms used in one industry rarely fit the same objects in another. Consequently, new employees frequently misunderstand when the foreman gives instructions.

Once during the war, when labor was scarce, I hired a young farm boy as a general laborer. He was strong and appeared to be anxious to give satisfaction. When he had been working for a couple

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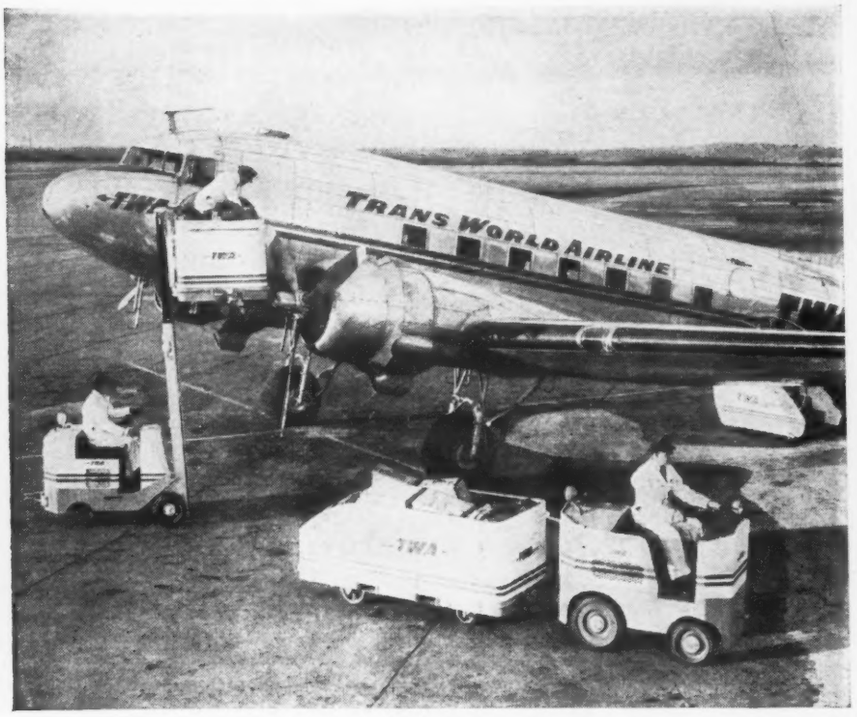

Cargo – Served Up Air Line Style!

To TWA—long one of the world's leading air lines—a single minute can mean five miles travelled in the air, or five miles lost on the ground. More than a year ago, Trans World Airline set out to shorten cargo handling time at terminals to keep pace with faster flight schedules made possible by improved aircraft.

After making a thorough study of its existing handling methods and investigating the methods and equipment used by other air lines, as well as by the Army and Navy during the war, TWA selected Towmotor Lift Trucks and Industrial Tractors, basing its choice on Towmotor's performance in handling all types of air cargo.

An unusual application of the lift truck system was worked out by TWA, whereby special 4-wheeled cargo trailers are moved in trains to plane side by Towmotor Tractors, at which point a Towmotor Lift Truck raises each trailer to plane loading level. This arrangement not only speeds up loading and unloading, but the trailer itself provides extra working space for cargo handlers, simplifying movement of cargo in and out of the plane and expediting balanced loading, particularly important in air transport.

The use of 4-wheeled trailers with Towmotor Tractors also enables TWA to collect various types of cargo, such as baggage, air mail and air express, at separate points in the terminal and move it rapidly and safely to plane side for loading. Similarly, unloaded cargo is distributed quickly and carefully to various locations at the airport.

For every handling problem there is an engineered solution . . . a solution based upon Towmotor experience and know-how gained in solving handling problems in every industry. Send for your copy of the Towmotor Lift Truck ANALYSIS GUIDE today. Towmotor Corporation, 1217 East 152nd Street, Cleveland 10, Ohio.

TAKE IT UP WITH

TOWMOTOR

THE ONE-MAN-GANG

of hours, I stopped him from the job he was doing and told him to "get a truck, go up to the warpers where the creelers were creeling, get the pieces, and put them at the redraw frames."

In a short time I passed by the boy again and found that he was busy at work on his original job, but the pieces had not been moved. I took it for granted that he had misunderstood, and I went over the instructions again. This time I pointed out the hand truck, pointed in the general direction of the warpers, and pointed to the redraw frames. To emphasize the instructions, I added that the redraw hands needed the pieces right then.

When I again returned and found that my instructions had not been carried out, I was really peeved. Then the thought struck me that perhaps it was my fault and not the boy's. He probably did not understand mill lauguage. Trucks, to him, probably were large vehicles for hauling wood or cotton; and pieces were anything from pieces of a broken dish to pieces of money. When I took time to walk around with the boy and demonstrate what I wanted him to do, he carried out instructions promptly.

The language of the mill should be taught new employees along with their duties. Supervisors will save themselves time and production if they will remember this detail. *(R-248)*

British Reader Agrees With Evershed Editorial

Your editorial ["The Evershed Report," TEXTILE WORLD, January, page 4] represented a keen analysis of the fallacy of fixing wages except on the basis of the contribution of the recipient to the creation of the productivity from which wages must ultimately be paid.

However much pink economists confuse the issue, man must still eat his bread through the sweat of his face. The sweat may be less because of the machine, but there still must be work. A man's standard of living is correlated directly to the work he himself does as well as to the efficiency of the machine.

The agitation in this country (Britain) for shorter hours and higher pay is based on ignorance of these indisputable principles. It proceeds from the false theory that work is not the lot of us unhappy humans.

Unfortunately, work is our inescapable lot unless we happen to live in the tropics and are content to subsist continuously beneath a banyan tree. Then, of course, we would have to accept a standard of living based on a banyan-tree-civilization level. *(R-224)*

Where a bankroll really rolls!

South Pacific Yap Islanders use ton-heavy, gristwheel-shaped stones as legal tender. One of these "coins" will buy ten thousand cocoanuts, a quarter acre of land, an eighteen foot war canoe—or a wife!

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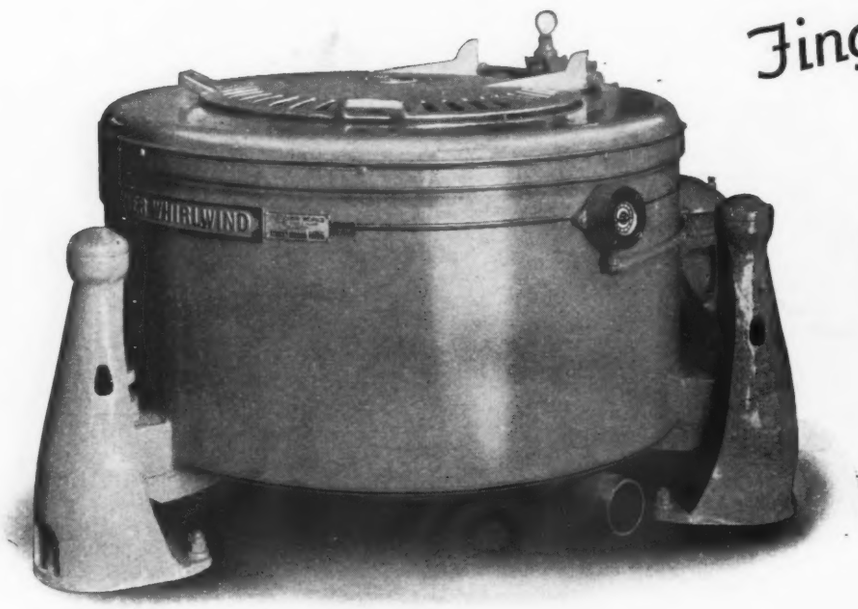

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Fletcher Engineers continually strive to give you a better, smoother extractor . . . that is easier to operate, and kinder to fabrics.

With Fletcher automatic finger-tip control you can set the machine to operate for any length of time desired. Hydraulic brake stops machine surely and steadily, eliminates jerking . . . which means longer brake life and more even wear.

High-speed, vibration-free "Whirlwind" Extractors *"whirl out the work"* in as little as half the time. Their exceptionally high basket speed, speed in acceleration and unloading, make possible extra margins of production, so essential in the effort to fill piled-up "back orders".

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MANUFACTURERS' BULLETINS

READERS may secure copies of literature reviewed on these pages by using the post cards below. Fill them out completely and drop them in the mail.

Free FOR THE ASKING

1. Suggestions to mill men on the application and use of dobby cords features the latest E. H. Jacobs Mfg. Co.'s bulletin in the suggestion series.

2. A resilient mounting for relieving vibration is now being built into Manhattan wheels for portable grinders, according to a bulletin issued by the Manhattan Rubber Div., Raybestos-Manhattan, Inc. The mounting is known as the Vibration Dampener Bushing.

3. Leather belting performance records, supported by illustrations of actual installations of its "Research" belting are presented in a four-page folder published by Graton & Knight Co.

4. Air conditioning is explained step by step in a non-technical booklet issued by Carrier Corp. The booklet is said to reveal the relationship between proper atmospheric conditions and efficient production.

5. Synthetic detergents and the chemistry behind them are discussed in an article appearing in the *Onyx Auxiliary*, published by Onyx Oil & Chemical Co.

6. "Guide to the Selection of Conveyor Belt Grades" has been issued by the B. F. Goodrich Co. The booklet discusses differences in various grades, outlines reliable measurements of qualities in various types of belts, and cites many common applications of belts.

7. Data on calcochrome Alizarine Gray 2BLS, as applied to several dyeing methods, is given in a booklet issued by Calco Chemical Div., American Cyanamid Co.

8. Hosiery finishing equipment, including a 24-form boarding unit and a 12-form unit air-cooled for operator comfort, is described in a folder issued by Paramount Textile Machinery Co. Several other units are also illustrated.

9. Aliphatic amines, amides, and nitriles for use in textile processing as cationic soaps, detergents, water-repellent agents, etc. are described in three illustrated folders published by Armour Chemical Div., Armour and Co.

10. An industrial boiler which makes use of radiant heat and a specially designed circulation system is discussed in bulletin No. 110 issued by John Phillips Badenhausen, Inc. Boiler efficiency with a 40% saving in boiler size is said to be possible.

11. Engineering services offered by Lockwood Greene Engineers, Inc., are briefly described in "Sound Engineering," a 6-page folder now available.

12. Industrial paint said to give protection against water, oil, acids, and alkalis is described in an illustrated booklet published by Prufcoat Laboratories, Inc. The paint is said to reduce maintenance costs.

13. Advantages of gas and modern gas equipment for industrial uses are discussed in a booklet of advertising preprints prepared by American Gas Assn. Illustrations from several industries are presented.

14. Industrial brushes in a variety of constructions and materials are presented in a booklet available from M. W. Jenkins' Sons, Inc. Several textile applications are illustrated with photographs.

15. Faxfilm material and method for examining surfaces are described and illustrated in literature published by The Faxfilm Co. Three dimensional comparison is said to be possible with Faxfilm.

16. Infrared processing data designed to give a concise picture of the possibilities of industrial applications of infrared heat is presented in a pamphlet issued by The Fostoria Pressed Steel Corp.

17. Flame cutting equipment for use by fire squads in emergency cutting of metal obstructions is described and illustrated in a 4-page folder published by Victor Equipment Co.

18. Industrial research and tools for use in research are discussed in an article appearing in *Dyelines and Bylines*, published by Calco Chemical Div., American Cyanamid Co. The spectrograph and machines related to it are among the tools mentioned.

19. Benzidine yellows, said to have won a permanent place in color printing after their wartime use as substitutes for chrome yellows, are the subject of an article in the Dec., 1945, issue of *U.S.I. Chemical News*, published by U.S. Industrial Chemicals, Inc.

20. Preventing clogged drains by the use of a solids interceptor which strains solid particles from industrial drains is discussed in literature available from J. A. Zurn Mfg Co.

21. Atomic power for peace is the subject of an article appearing in the Spring issue of *The Chemical Digest*, published by Foster

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D. Snell, Inc. The economic aspects of the problem are considered.

22. Stainless steel valves made by a new procedure of registering heat analyses and identifying each casting with its particular analysis are announced in literature available from the Cooper Alloy Foundry Co.

23. "Heat Transfer and Crystallization," published by Swenson Evaporator Co., is a presentation of the principles underlying evaporation and crystallization. The theory and practice of heat transfer are discussed.

24. Brazing copper by selective heating of the parts to be brazed through the use of a salt-bath furnace is described in the March issue of *Wheelco Comments*, published by Wheelco Instruments Co. Decarburization is said to be reduced from 15% to 3% by the technique.

25. Heavy tools, such as drills, pumps, hoists, etc., made by Gardner-Denver Co. are described in a recently issued booklet. Many applications of the tools are illustrated with photographs.

26. A vapor cleaning unit, said to be an important advance in steam cleaning equipment, is announced in the Jan.-Feb. issue of Oakite News Service. Photographic illustrations show applications of the unit.

27. A mercerizing penetrant, known by the trade name Dypenol, is said to be applicable to the skein, warp, or piece-goods process of mercerizing in a booklet issued by Dexter Chemical Corp.

28. Truck and tractor trailers for use in a variety of industrial transportation applications are illustrated in a pamphlet released by Fruehauf Trailer Co.

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29. Facts about formaldehyde — including its characteristics, the normal response of individuals to various concentrations, and safety precautions for its use—are given in a leaflet available from the U.S. Dept. of Labor.

30. Water coolers made by Sunroc Refrigeration Co. are described and illustrated in a 2-color booklet recently published. The different models and specifications for each are given.

31. Safety relief valves for use in connection with steam, air, gas, etc. are discussed in publication No. 4150, issued by Cochrane Corp. Capacity and pressure-rise data are given.

32. A thermoswitch for regulating temperature over a range of —100° to + 400° F. for laboratory processes is described in *The Burrell Technical Announcer*, published by Burrell Technical Supply Co. The switch is illustrated with a photograph.

33. Silicone rubber for use in applications where unusual temperatures must be endured is the subject of a 4-page folder published by Dow Corning Corp. The silicone rubber is also said to be resistant to humidity as high as 100%.

34. Plyweld picker sticks for use on looms are described in literature released by E. H. Jacobs Mfg. Corp. The sticks are said to possess unusual length of operating life.

35. Color harmony for eye comfort and increased operator efficiency is described and illustrated in a folder published by Truscon Laboratories, Inc. A plant-survey chart is also illustrated.

36. How to get ideas through a plant suggestion system is the subject of a folder available from Elliott Service Co.

37. Textile engineering service available from Werner Textile Consultants, Inc., are described in a booklet recently issued by that company. Several applications of engineering methods to textile plants are illustrated.

38. Extractors on display at the recent Twentieth Annual Exposition of the Chemical Industries are described in the March issue of *Month by Month*, published by American Machine and Metals, Inc. A variable-speed suspended machine is also mentioned.

39. Textile lubrication and the factors which relate to it are discussed in a booklet prepared by The Texas Co. In addition to explaining the different functions of a lubricant, the booklet illustrates several critical lubrication points of textile machinery.

40. An industrial dispensary and the staff which carries out its functions are the subject of an article appearing in the March issue of *The Yarn Carrier*, published by Textile Machine Works. The equipment and staff of the dispensary are shown by photographs.

41. Spectral characteristics of "white" fluorescent lamps are discussed in the recent issue of *Sylvania Lighting News*, published by Sylvania Electric Products, Inc. The text is illustrated with charts showing spectral distribution curves.

42. "The Saga of Wool in War and Peace," issued by The American Wool Council, describes and illustrates some of the important uses of wool for military and civilian purposes. The text is said to have been assembled from reports of the U. S. Army and Navy.

43. Automatic transportation in textile plants is illustrated by photographs and drawings in the March issue of *The Swirling Column*, published by The American Monorail Co. Warps, boxes, and gray goods are mentioned in the applications.

44. Synthetic organic chemicals for use in bleaching, polymeration, halogenation, and in other reactions are the subject of a folder issued by Eastman Kodak Co. Reactions are shown by chemical formulas.

45. "Packaged" air conditioning for laboratories, offices, etc. are discussed in the March issue of *Chrysler Airtemp News*, issued by Airtemp Div., Chrysler Corp. Several installations of the air-conditioning units are illustrated.

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Visible evidence of tramp iron trouble stopped in its tracks. Dings "High Intensity" Textile Magnets have a non-sparking corrugated bronze face plate, designed to help trap non-ferrous foreign materials as well as tramp iron.

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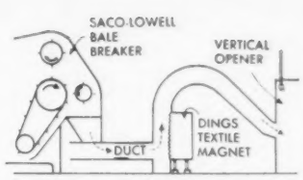
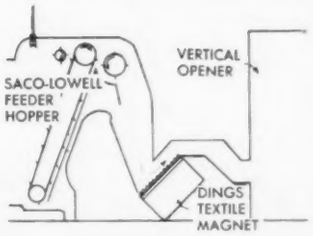
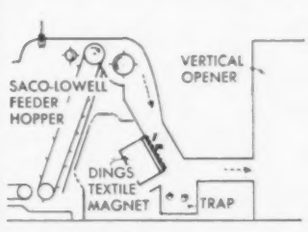


In-line installation of Dings Textile Magnet between feeder and opener. Where space is insufficient for this set-up, place magnet to one side of feeder at right angle to main line and pipe back to vertical opener.





Two space-saving Dings Magnet installations between feeder hopper and vertical opener. Both of these plans are recommended by insurance companies.

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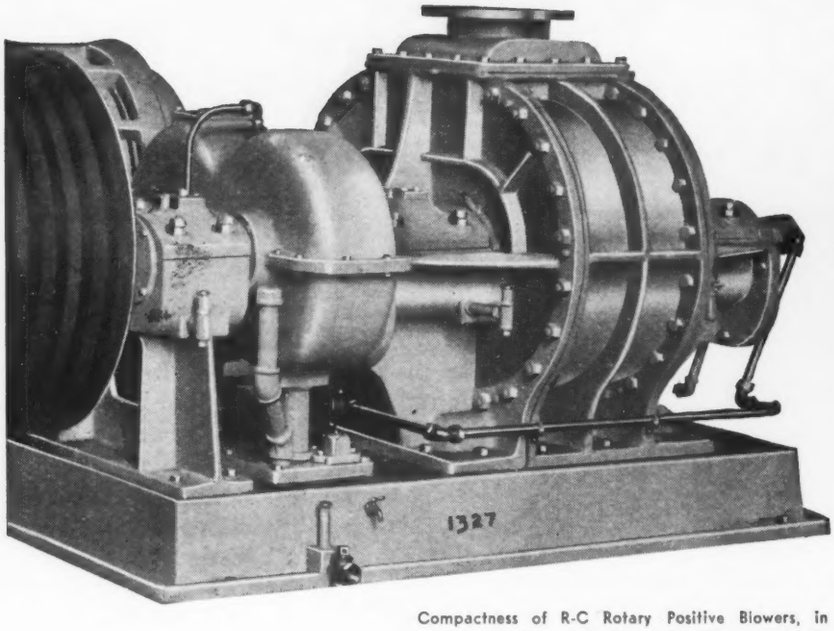
"Separation Headquarters Since 1899"



Compactness of R-C Rotary Positive Blowers, in relation to their capacity, makes them especially suitable for installations where space is limited.

R-C

dual-ability FITS PRESSURE TO THE JOB . .

ROTARY POSITIVE

The simple principle of the R-C Rotary Positive Blower has been proved by successful use for almost a century. Sizes from 5 CFM to 50,000 CFM, or higher.

CENTRIFUGAL

Where centrifugal blowers are better adapted to the application, modern R-C units offer outstanding advantages, in single or multi-stage design, for any desired capacity.

● Yarn drying needs more air pressure from blowers at the start, than later on, when the yarn is partly dry. This is due to the drier yarn permitting easier air passage.

Roots-Connersville Rotary Positive Blowers have the *dual-ability* to meet these changing conditions, automatically. Their impellers deliver a predetermined volume of air, building up or decreasing pressure as needed.

Other advantages of R-C blowers are their simple design, with no small moving parts, and their sturdy construction. Their long-time, trouble-free performance protects the quality and quantity of your production.

Our engineers will help you select the right R-C blower from our wide range of sizes. Or, we'll design a blower to fit your exact needs. Consult us, without obligation.

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Questions AND Answers

To Set Picking Ball May Entail Other Changes

Technical Editor:

We have your Textile Mill Data Book, revised edition, and we note one of your articles under the heading, "Timing the Pick," by John Picone. Your diagram of the picking ball against the back-wing cam shows the highest point of the cam parallel with the highest point of the picking ball.

However, we cannot adjust ours to that position. The number of our pick roll is 3051; and it is 2 15/16 in. in diameter with a ¾-in. hole. Our back-wing cam number is L.15740, and it has a ⅞x1¼ in. hole with a ¼-in. tap.

What numbers of picking ball and back-wing cam are required in order to have them meet at the same position as indicated in the article? (9087)

There is a possibility that the model loom under consideration accounts for the fact that you have not been able to make this adjustment. However, a few minor changes on the loom, regardless of the model, will permit the adjustments to be made.

One difficulty frequently encountered is that the bracket on the rocker shaft is too high. The bracket can be dropped to bring the picking ball to a different position.

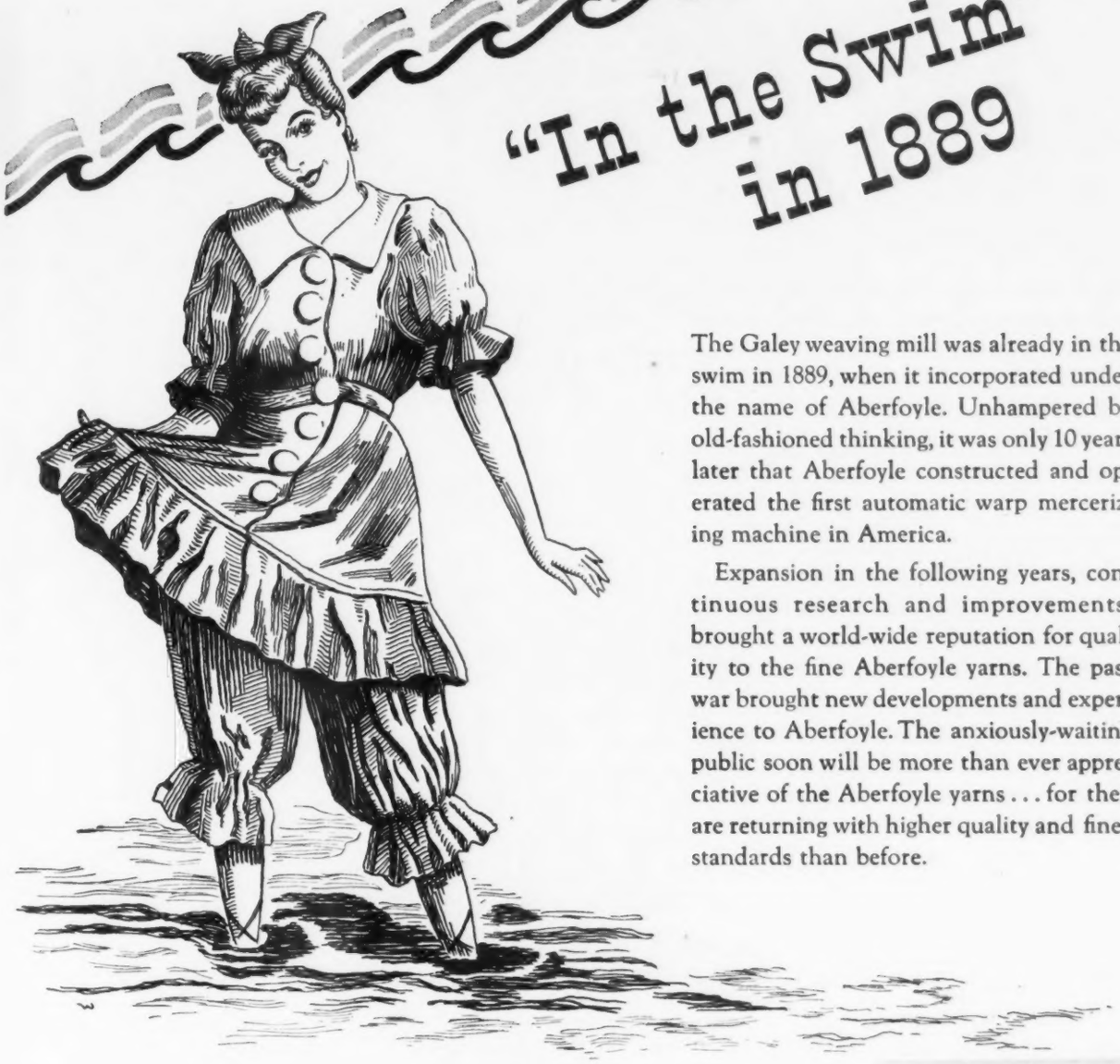
Another possibility is that the model loom you have is at present equipped with a heavier picking ball than the one mentioned in the data book. If so, the ball will be thrown in a different position.

The data given in the book was intended to specify the exact pick timing under theoretical conditions to attain a free, easy pick. As is true in all other machine adjustments, the pick-timing adjustment will be affected by any loom condition varying from the conditions used in the data book.

If you will advise the model loom with which you are working, an attempt will be made to suggest the exact minor loom adjustments which must be made to achieve the best timing of the pick.

(*Continued on page* 194)

"In the Swim" in 1889



The Galey weaving mill was already in the swim in 1889, when it incorporated under the name of Aberfoyle. Unhampered by old-fashioned thinking, it was only 10 years later that Aberfoyle constructed and operated the first automatic warp mercerizing machine in America.

Expansion in the following years, continuous research and improvements, brought a world-wide reputation for quality to the fine Aberfoyle yarns. The past war brought new developments and experience to Aberfoyle. The anxiously-waiting public soon will be more than ever appreciative of the Aberfoyle yarns . . . for they are returning with higher quality and finer standards than before.

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ABERFOYLE MANUFACTURING COMPANY
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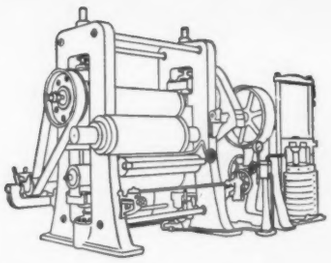

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FINANCING OFFICES IN ALL PRINCIPAL CITIES OF THE UNITED STATES AND CANADA

(*Continued from page 192*)

Woolen-Yarn Waste Is Not Excessive

Technical Editor:

What percentage is generally allowed by woolen mills for waste of yarn in the various processes of yarn preparation and weaving? We use from 2⅛-run to 3¼-run yarn. The processes in which we are particularly interested are warping yarn from dresser spools, automatic filling winding from cones, and weaving on automatic 82-in. looms, 22 to 28 picks per inch.

It has been our policy in determining the amount of yarn required for a given manufacturing order to allow a certain percentage for waste. We wish to substantiate or correct our allowance according to the general practice. (9094)

The following waste-percentage figures are valid only for good yarns. If yarn breakage is excessive, the amount of waste will increase over the percentages given.

The amount of warping yarn waste from dresser spools is nearly negligible. The finer the count of the yarn, the less waste there will be. The maximum should not exceed about 0.5%. If dressing is done and not all the yarn on the spools is utilized, this yarn is usually used for the next warp.

The amount of waste on automatic filling winder from cones is also negligible. Maximum, about 0.5%.

On automatic looms, the finer the count of yarn, the less waste there will be. On 3¼-run yarn, the percentage probably will be about 1.5 to 2.0; on 2⅛-run yarn, about 3.0%. If 1½-run or coarser yarn is used, the amount of waste may reach as much as 5.0%.

Woolen Shirt Fabrics Need Standard Finishes

Technical Editor:

We are enclosing a sample of a loosely woven, all-wool fabric for use in men's sport shirts. Could you tell us what process we should use for finishing this material for that purpose? Naturally we would like to keep the process as simple as possible. (9093)

In order to make this fabric acceptable to the clothing trade it should be sent to some woolen or worsted finishing plant. There are a number of mills which will accept commission finishing.

After weaving and before finishing, of course, the cloth should be burled and mended. In burling draw all the knots to the back of the fabric so that in shearing the back all the knots will be sheared off, so that it will be possible to shear the face without making knot holes. When the fabric is run through the shear, any lump which will raise the cloth will cause a hole.

Wet-finishing operations should con-

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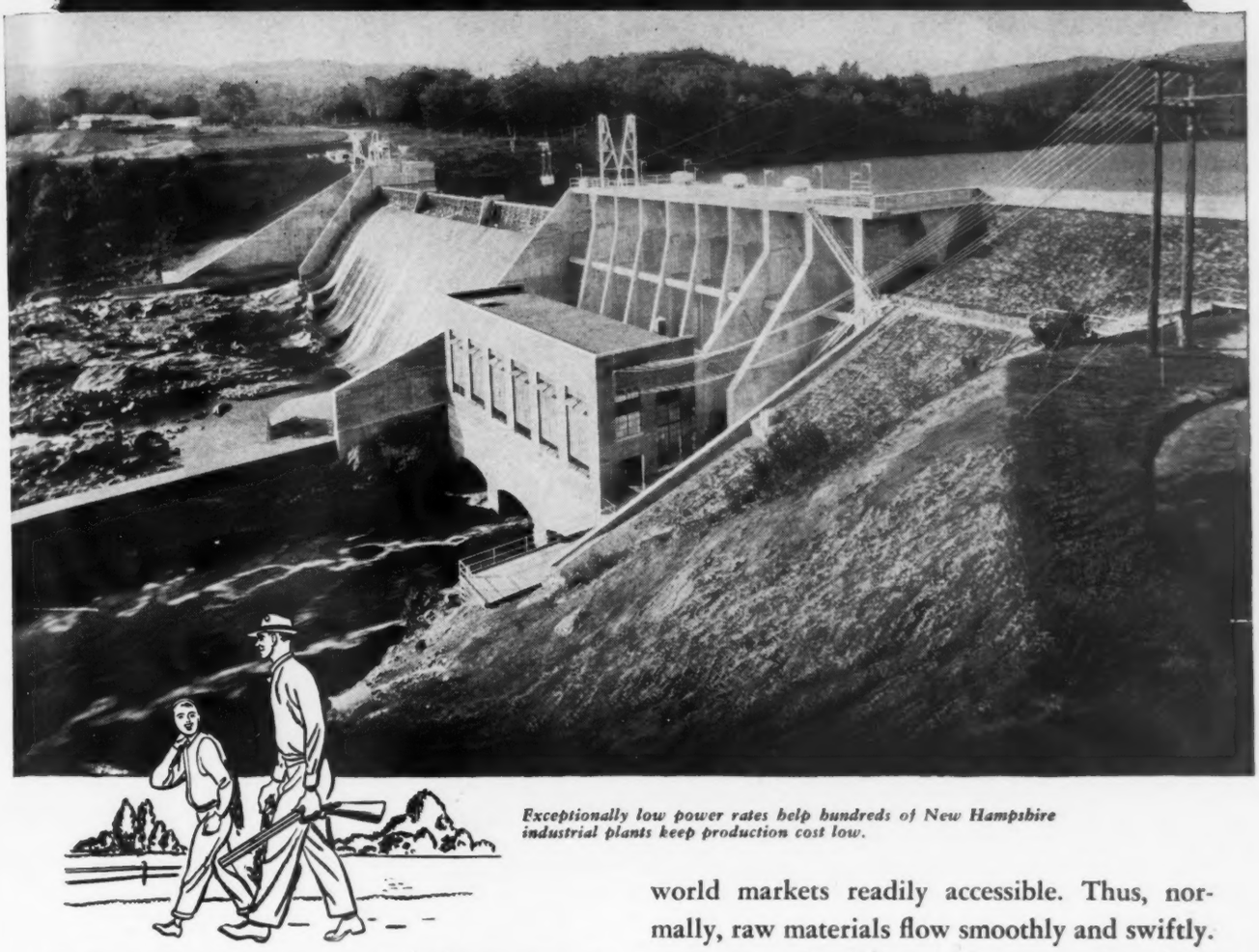

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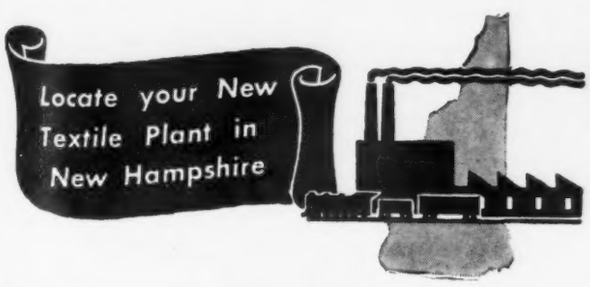
Count on the right sort of American born help here, too. Here people own their homes and benefit by productive gardens. They handle their jobs conscientiously, and like to look upon their employment as being permanent.

Write *for new industrial location book: "A Plant in New Hampshire." Address Edward Ellingwood, Industrial Director, 93 State Office Building.*



NEW HAMPSHIRE

State Planning and Development Commission

CONCORD, New Hampshire

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sist of scouring for about 20 min. with a neutral soap to soften the fabric texture. All spots should be hand-scoured. A fabric of this sort should be put through a crab if possible. In this machine, the cloth passes through boiling water and is then wound tightly on a roll and left for some time to set. Cold water is also used. This treatment prevents cockling and attains shrinkage without felting.

The foregoing treatment is suggested on the assumption that a clear, thready finish is desired. If a soft, flannel finish is wanted, the cloth must be run through a fulling mill until the desired amount of cover is obtained. If the cloth is to be fulled, crabbing may not be necessary. After piece-dyeing and rinsing, the cloth should be extracted and then run through a tenter and dryer.

In the dry-finishing department; the goods should be sheared lightly back and face, run through a steam roll or semi-decating machine, and pressed lightly on a rotary press.

Some of these operations may be eliminated, but it should be remembered that a fabric that is not finished properly has little or no value to the clothing trade.

Knit-Cloth Weight Can Only Be Approximated

Technical Editor:

How does one figure the grease weight of cloth knit on circular spring-needle machines? Can it be figured from the yarn weights, needle sizes, etc? (9095)

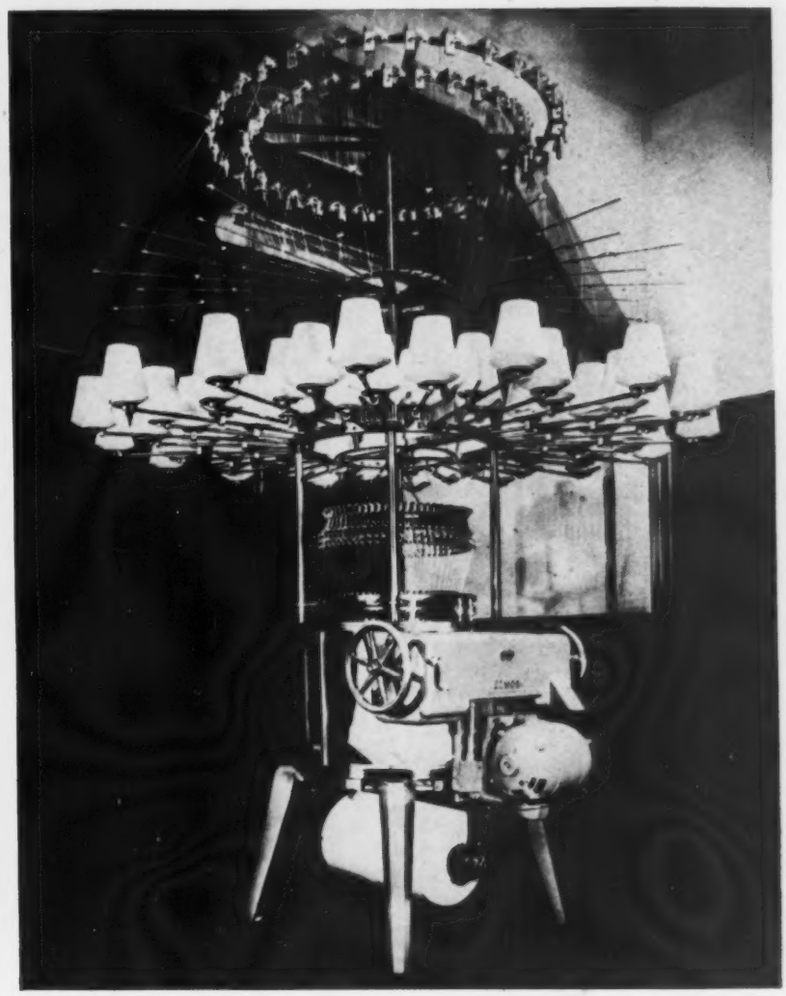
The weight of cloth knit on circular spring-needle machines can be calculated with certain empirical formulas. However, there usually are so many unknown quantities which enter into the calculations that the formulas are impractical.

The simplest method for arriving at the cloth weight is to make two spots with a bright color at given distances apart on the yarn on one feed. The head of the machine is then turned by hand until both spots of yarn appear just above the needles. The number of needles included in the space between the two spots is counted. Knowing the number of needles in the head, it is easy to calculate the length of yarn for one course around the head.

The courses per inch times 36 gives the courses per yard. This number multiplied by the length of the yarn for one course gives the total length of yarn for one linear yard of fabric. A regular table for the weight of yarn counts for a given number of yards is then used to convert the yardage into weight.

Of course, this weight is also only approximate. To calculate the weight of

World's Fastest Producer of Jersey Fabrics!



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18"—64 feeds—16 to 24 cut
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Now you can see it in operation at our plant. To see the fastest producer of jersey fabric in the world is worth the time it takes so just phone or write for an appointment.

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the cloth with near-absolute accuracy would involve doing the above measurement and calculation for each feed. Even then you would still have a variance in the tightness of stitch under running conditions and humidity.

Two-Bar Tricot Fabric Not Entirely Run-Proof

Technical Editor:

In reading your article on tricot knitting in the September issue of TEXTILE WORLD, I noted that you called two-bar tricot fabrics "run-proof."

Having noticed what looked like runs in rayon tricot underwear, I have here reproduced the effect on a sample labeled "two-bar." How about it? (9068)

The attached sample was a two-bar tricot fabric, so-called jersey stitch. You are right in criticizing the expression "run-proof." A more correct term would be run-resistant. However, for practical commercial purposes, it is not wholly incorrect to call the two-bar jersey stitch run-proof because a large amount of force is necessary to cause the fabric to run. It offers unusual resistance compared to free-running quality of plain, filling-knitted fabrics.

The reason this defect might appear under normal conditions of wear is that the fabric was not properly designed to be totally run-proof. If you look at the back of this fabric and compare it with the backs of other tricot fabrics, you will see that the threads in the back do not cross over very much, which, basically, is the reason why this fabric would run. If the threads had been crossed over considerably more, the fabric would not run under anything like normal damage from wear.

There are an infinite number of different ways to manufacture a two-bar tricot fabric, and this construction is one of the few that will run.

Two 2-for-1 Twisters Developed by Germans

Technical Editor:

As a constant reader of TEXTILE WORLD and knowing that you have given special attention to the throwing industry, I would like to know if you have any information on the German twisting machines which are said to put two turns of twist for every spindle revolution.

I read a brief mention of this which said the machines were made by Barmag. (9089)

The Germans have apparently developed two quite different 2-for-1 twisting machines: one for use on heavy

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Step on it Mr. Plant Operator . . . up and over . . . it's high time to get away from those "industrial buts" that are lurking around waiting for a chance to give you a jolt in the pants.

Come on over into Norfolk and Western territory, where conditions are ideal for the efficient operation of textile plants. Here you'll find the room to expand you've been looking for; raw materials and natural resources galore; plenty of pure water, ample power, and highest quality, all-purpose bituminous coal; intelligent native labor; a tax policy that's friendly to industry; the Norfolk and Western Railway's unexcelled fast transportation service, and the ice-free, year-round Port of Norfolk that put you right next door to domestic and world markets.

And, when you locate in Norfolk and Western territory you will find congenial people to live with; good schools for the children, scenic beauty, mountain and seashore resorts, and a climate that is mild and healthful.

We know that in considering the location or relocation of textile plants there are a lot of "buts", for instance: "It looks good, but . . . " "I'd like to try that place, but . . . " "It would be swell down there, but . . . "

But, "buts or no buts", from any angle you look at it, this is the right territory for your plant. Make your decision before adverse conditions let you have a "but" where it hurts . . . when you just don't have time to pick the best place to land.

For detailed, confidential information about ideal, permanent textile plant sites, call or write: Industrial and Agricultral Department, Norfolk and Western Railway, Roanoke 17, Va.

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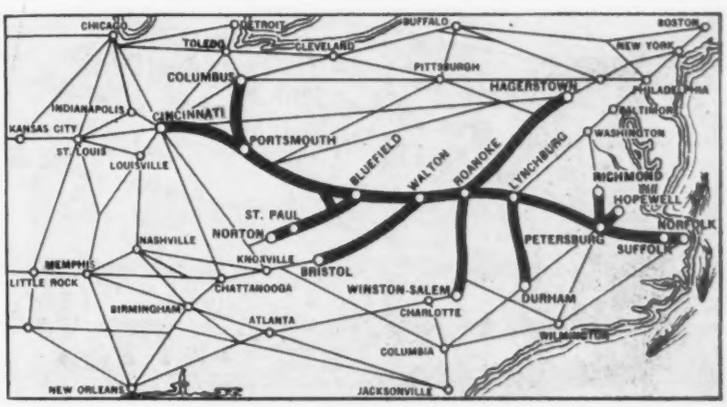

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yarns such as tire-cord and the other for twisting fine yarns such as crepe fabrics. Both machines operate on the same long-known principle utilizing a stationary package, inside of which turns a hollow revolving spindle. The path of the yarn is over the head of the package, down through the hollow spindle, out the base, and then forward toward the head of the package to a suitable take-up device. As the spindle revolves one turn is inserted between the head of the package and the base of the spindle and another turn from the base of the spindle to the take-up package.

The heavy German spindle for tire-cord is reported by Capt. J. L. Truslow (SC) USNR and Robert M. Jones in FIAT Final Report Number 473. This Barmag twister was discussed by Truslow, Jones, and Brackett Parsons at a meeting of the National Association of Textile Machinery Manufacturers, February 14 in Boston.

The 2-for-1 twister spindle for twisting crepe yarns is also a Barmag spindle and was described by Ernest C. Geier at the March 13 meeting of the American Association of Textile Technologists in New York [see "Germans Trail U. S. in Throwing and Weaving" elsewhere in this issue]. This spindle was not in production but merely in advance experimental stage.

In addition to the German 2-for-1 twisting machines, the British have used one for a number of years. In the British machine, however, the package is horizontal instead of approximately vertical.

In the 1930's two different machines utilizing this principle were built by American manufacturers but both were discontinued. One small throwing plant, however, was put into operation using one of the two machines. At the present time at least three large U. S. machinery manufacturers are continuing to work on 2-for-1 twisting machines.

Coat-Front Felt Uses Wool and Cotton Blend

Technical Editor:

We are enclosing samples of felt used in the construction of canvas fronts for sack coats and overcoats. We would appreciate any advice you may be able to give us regarding the manufacture of this type of material. (9096)

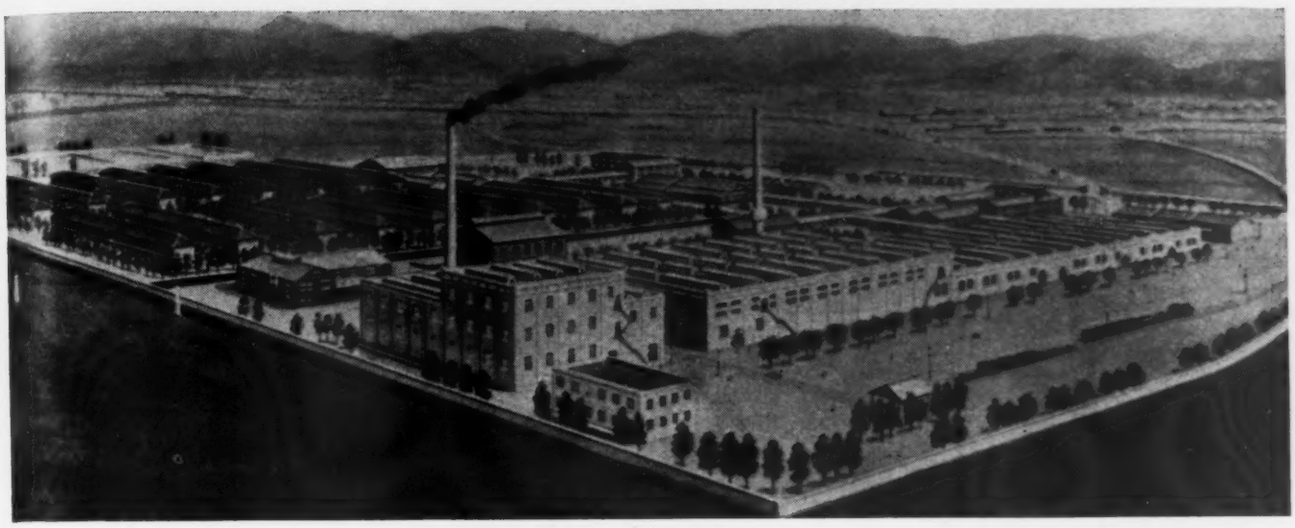
The so-called coat-front felt samples represent the usual 3½ oz. per sq. yd., soft, part-wool felts which have the property of being stretched or fashioned, in contrast to woven goods.

These felts are manufactured from stock containing 20% woolen fiber and 80% cotton fiber. The stock is blended, oiled, and picked on conventional woolen machinery. Batts, or laps, of ap-

Rayon Plants

[No. 2 of a series of Kohorn Built Plants]

Complete Engineering & Construction



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(a) Survey on the ground to determine location, man-power, transportation, markets, raw material, power, fuel and water supplies.
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(c) Consultation on types of yarn, denier, packaging, etc.
(d) Estimates for land and building, equipment, and working capital.
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(a) Furnish complete plans for buildings and machinery.
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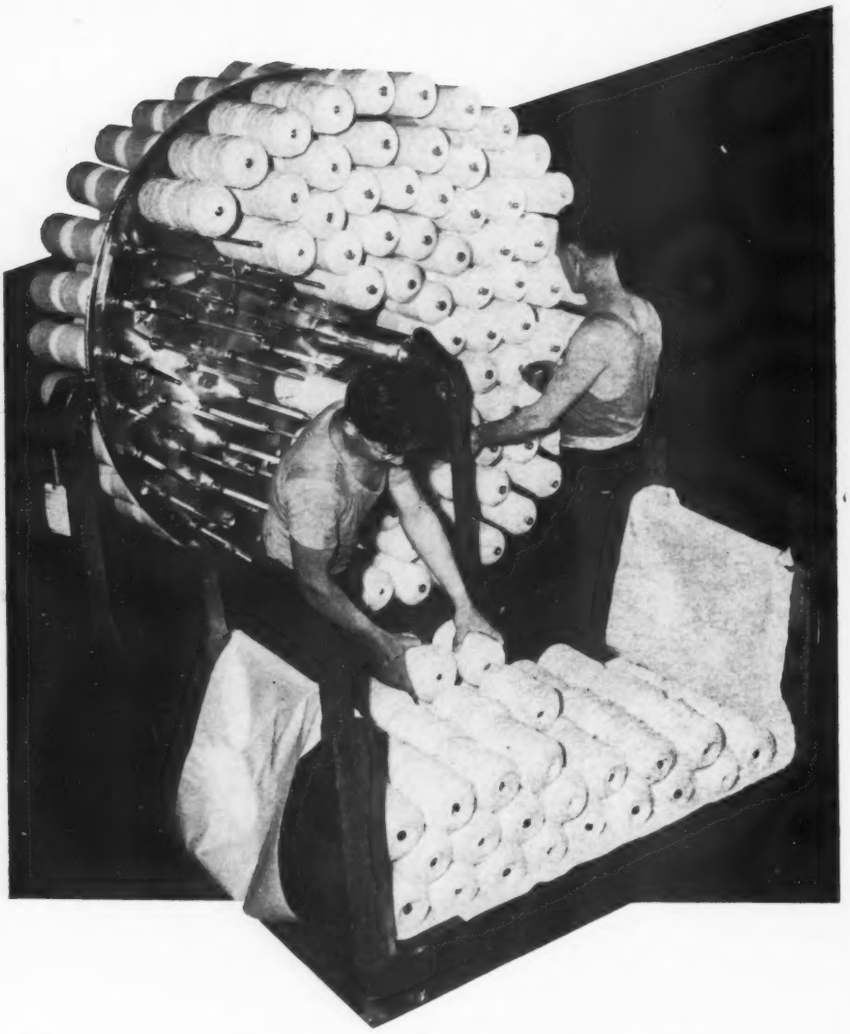

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proximately 40-yd. lengths are built up by depositing webs from cards 80 to 84 in. wide on an endless apron or felt former. Cross strength in this carded batt is obtained by cross-laying a web from a card set at a right angle to the straight card.

This partially formed felt lap or batt is then passed to the hardening operation, wherein it is moistened, steamed, and passed through two large 5x9-in. vibrating plattens. These oscillating or vibrating plattens compact the fiber mass and cause a working of the fibers so that a felt possessing strength results. Several batts at a time, with separating cloth carrier aprons between them, are passed through these plattens.

The hardened felt is then given a very short milling or fulling in hammer stock mills. It is rinsed or scoured, dried on conventional textile pin dryers, finished, inspected, and rolled. It is finished in widths from 72 to 80 in. and in roll lengths of 40 to 45 yd.

Streaks in Warp Caused by Crowded Ends

Technical Editor:

We are having considerable trouble with dark streaks appearing in the warp of some of our cloth constructions, as can be seen in the sample we are sending. Can you account for them? (9097)

The dark streaks appearing warpwise in this cloth sample were probably caused by a careless start-up of the warp in the loom. The warp starter should make certain that there are no places where a group of heddles are crowded and held out of line with the rest of the warp ends by harness hooks. Where this crowding occurs, the ends are pulled sideways, increasing the tension on them; and as the lay approaches the fell of the cloth, the reed chafes the warp yarns, unduly disturbing the fibers. This chafing causes warp streaks. In a mixture or in any colored fabric, such streaks are often clearly discernible when the piece is examined at the gray perch.

One frequent cause of crowding the heddles is the drop-wire rod supports. It is well to make sure that the supports do not separate the warp ends unevenly. If the supports are placed in such a position that a group of warp ends are crowded to one side, the danger of streaks increases.

Newport Industries, Inc., Pensacola, Fla., has awarded a contract to Arnold Construction Co., Palm Beach, Fla., for a new one-story mill at Canal Point, Fla., for manufacture of Ramie fiber products. The reported cost is $250,000 with equipment.

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THE POST WAR MODEL OF THE

CRAWFORD ELECTRIC STOPMOTION

Designed and Developed by CRAWFORD the name known for DURABILITY AND PRECISION FOR OVER 55 YEARS . . . Be First with the LATEST.

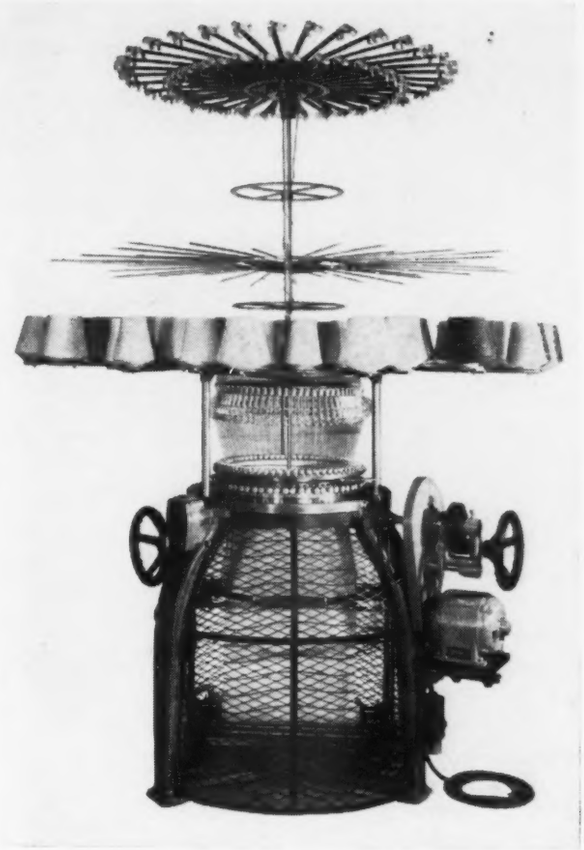

Illustration shows Crawford Electric Stopmotion applied on Supreme MJ 20-64 type knitting machine.

WHAT MAKES THIS SUPERIOR?

1. All contacts completely enclosed—dust and lint proof.
2. All contacts enlarged to insure positive contact and DURABILITY.
3. All parts easily accessible and interchangeable.
4. Lower take-up finger redesigned to eliminate tangling of yarn.
5. Knock-off box streamlined—cut-off switch works directly with knock-off—elimination of outside switch connecting.
6. Simple adjustment—just a screwdriver required.

BE FIRST WITH THE LATEST. Order CRAWFORD ELECTRIC STOPMOTIONS direct or from your knitting machine source. These machine makers furnish Crawford Electric Stopmotions on your specification:

SCOTT & WILLIAMS, INC.
LEIGHTON MACHINE CO.
STAFFORD & HOLT, INC.

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SUPREME KNITTING MACHINE CO., INC.
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TOMPKINS BROTHERS CO.
WILDMAN MANUFACTURING CO.
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"EXCELLENT!! MARVELOUS!!"

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you know you're buying BETTER EQUIPMENT

Fig. 2125 Bronze Gate

● **The installation of Lunkenheimer Valves, Lubricators, or Air Devices on power equipment is an indication that the equipment itself is of *superior construction and efficiency.***

It's the quality-minded manufacturer who selects Lunkenheimer products for his equipment. He knows the Lunkenheimer reputation for correct engineering, advanced design, superior workmanship . . . he knows his equipment will give better performance with less trouble, when fitted with Lunkenheimer Valves or other devices.

He knows, in short, that his own product is thus given added salability, and in use will give the purchaser maximum results at minimum cost.

Whenever and wherever you purchase power equipment units, you'll be wise to look for the Lunkenheimer name on valves and lubricators —*a positive guide to value.*

THE LUNKENHEIMER COMPANY, Cincinnati 14, Ohio, U.S.A. (Offices: New York 13, Chicago 6, Boston 10, Philadelphia 7. Export Department: 318-322 Hudson Street, New York 13, N. Y.)

Fig. 16 "Renewo" Globe

Fig. 1430 Iron Body Gate

● *Perhaps YOU Have A Product That Can Be Given This Added Sales Advantage. If your products require the use of valves, lubricators, air devices, or boiler mountings, the name Lunkenheimer on such equipment will provide extra sales appeal. For further information see your nearest LUNKENHEIMER DISTRIBUTOR.*

Fig. 1834 "Alvor" Constant Level Oil Control

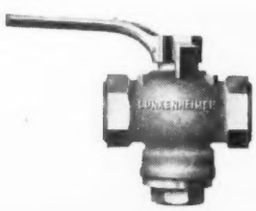


Fig. 1571 Air Cock 150 Lb. Pressure

LUNKENHEIMER VALVES

BRONZE, IRON, STEEL, AND CORROSION RESISTANT ALLOY VALVES
AIR DEVICES, LUBRICATORS, AIRCRAFT FITTINGS

Price Control Lifted from Textile Machinery

The OPA has taken price-control off textile machinery and accessories. The detailed list of decontrolled items is as follows:

1. Fiber-to-fabric machinery

A. Cleaning and opening machinery: for cotton—feeders, breakers, vertical openers, lattice openers, reserve boxes, pickers, condensers; for wool—wool dusters, wool washing machines, burr machines, carbonizing machines, pickers, garnett machines, rag shakers, rag grinders; for fibers, except cotton and wool—hacklers, oilers.

B. Carding machinery — cotton, worsted, wool, tape condensers, apron condensers.

C. Combing machinery — sliver-lap machines, ribbon-lap machines, cotton combers, ball winders, wool combs (Noble, French).

D. Drawing and roving frames—drawing and preparing machinery, wool-preparing gill boxes, drawing frames, gill drawing boxes, intersecting gill boxes, roving frames (ring, flyer), hard-fiber machines (breakers, spreaders).

E. Spinning and twisting frames: former—ring, flyer, cap, mule, jennies; latter—ring, flyer, cap, up-twister, doubler twister.

F. Yarn-preparing machinery—winding and spooling machines, warpers, warper creels, slashers, beamers, quillers, reels, crabbing machines.

G. Synthetic fiber spinning machinery for filament extrusion (pot bucket, bobbin, continuous).

II. Fabric machinery

A. Looms: for cotton, linen, rayon, or silk—over 12 in., both non-automatic and automatic; for woolens and worsted —over 12 in.; for carpets and rugs—8/4 yd. and up; for axminster and velvet —under 8/4 yd.; narrow fabric looms—12 in. or less.

B. Knitting machines: hosiery—circular, full fashioned; knitting machines except hosiery—circular, flat, warp.

C. Braiding machines — maypole type, yarn deflection, high-speed type, barmen lace braider.

D. Lace machines—levers, bobbinet, nottingham lace curtain.

E. Embroidery machines — hand, schiffli, bonnaz, or cornely.

III. Bleaching, dyeing and finishing machinery

A. Bleaching machinery including kiers, chemicing, souring, and washing machines, squeezers.

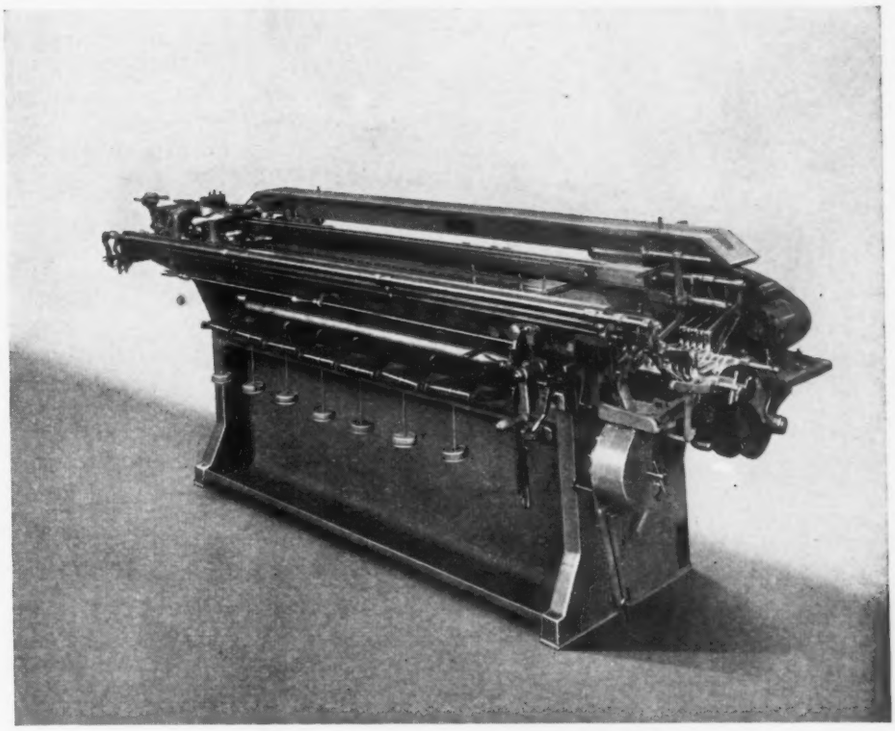
B. Yarn dyeing machines—stock, skein, warp, package, beam.

C. Cloth-dyeing machines — compartment, pad, jig, continuous.

D. Cloth-printing machines — direct color, developed color.

E. Starching machines — scutchers

BUILDERS of OUTERWEAR and UNDERWEAR FLAT KNITTING MACHINERY



PURL STITCH OR LINK KNITTING MACHINE

This Robaczynski designed machine has novel features which no other machine of its type possesses. Notice the construction of the steel base with its receptacle in front to prevent soiling of goods coming down from the machine.

Known to be the simplest machine of its type in the world to operate it produces all the modern stitches used in garment fabrics.

THE NEW VERSATILE HIGH SPEED TRICOT MACHINE

built in a 180 inch width will soon be ready for inspection. Make an appointment to see it.

BUILDERS of *V type flat knitting machines* for cardigans, jerseys, etc. Also *twin head border machines* and the fastest *circular knitting string and belt knitting machines* in the world. For complete information on any of this equipment write or telephone us for literature or make an appointment to see these machines in operation.

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MACHINE CORPORATION
PURL STITCH (Links and Links) and FLAT KNITTING MACHINES

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FLOOR
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DARNELL

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(except flax), expanders, mangles, (water, starch, heavy starch), tommy dodd.

F. Dry-finishing machines—shearing, brushing, napping, calendering, subsingeing, beetling.

G. Wet-finishing machines—steaming, dampening, decating, tentering, fulling, mercerizing, sanforizing.

H. Cloth-handling machines—inspecting, folding, rolling, pressing, doubling, measuring.

IV. Accessories and parts for textile machinery

A. For fiber-to-fabric machinery—card clothing, napping clothing, garnett wire, comb circles, comb pins, spinning spindles, spinning rings, ring travelers, faller pins, rolls.

B. For fabric machinery: for looms—heddles, heddle frames, reeds, picker sticks, pickers, lug straps, picker straps, shuttles, warp-stop motions; for knitting machinery, except needles—jacks, sinkers and webholders, needle beds, yarn guides, pile loop frames, transfer devices, stop motions, beard pressers; for braiding machines and lace machines—carriage, bobbins; for embroidery machines—frames, shuttles, threading machines; for hand looms—pattern and punching machines, dobbies, jacquards. Also accessories and parts for bleaching, dyeing, and finishing machines.

New Dyes and Chemicals

(*Continued from page 162*)

of the vinyls, oils, or nitrocelluloses, they are said by the U. S. investigators to be of good quality.

Polyisobutylene, known in Germany as "Oppanol," apparently was used extensively as a coating for gasproof clothing during the war. The best sample seen by the investigators had a dry finish coat of nitrocellulose.

The investigators point out, however, that the potential significance to the U. S. coated-fabrics industry of these German developments cannot be determined until samples brought back by the investigators have been subjected to evaluation tests.

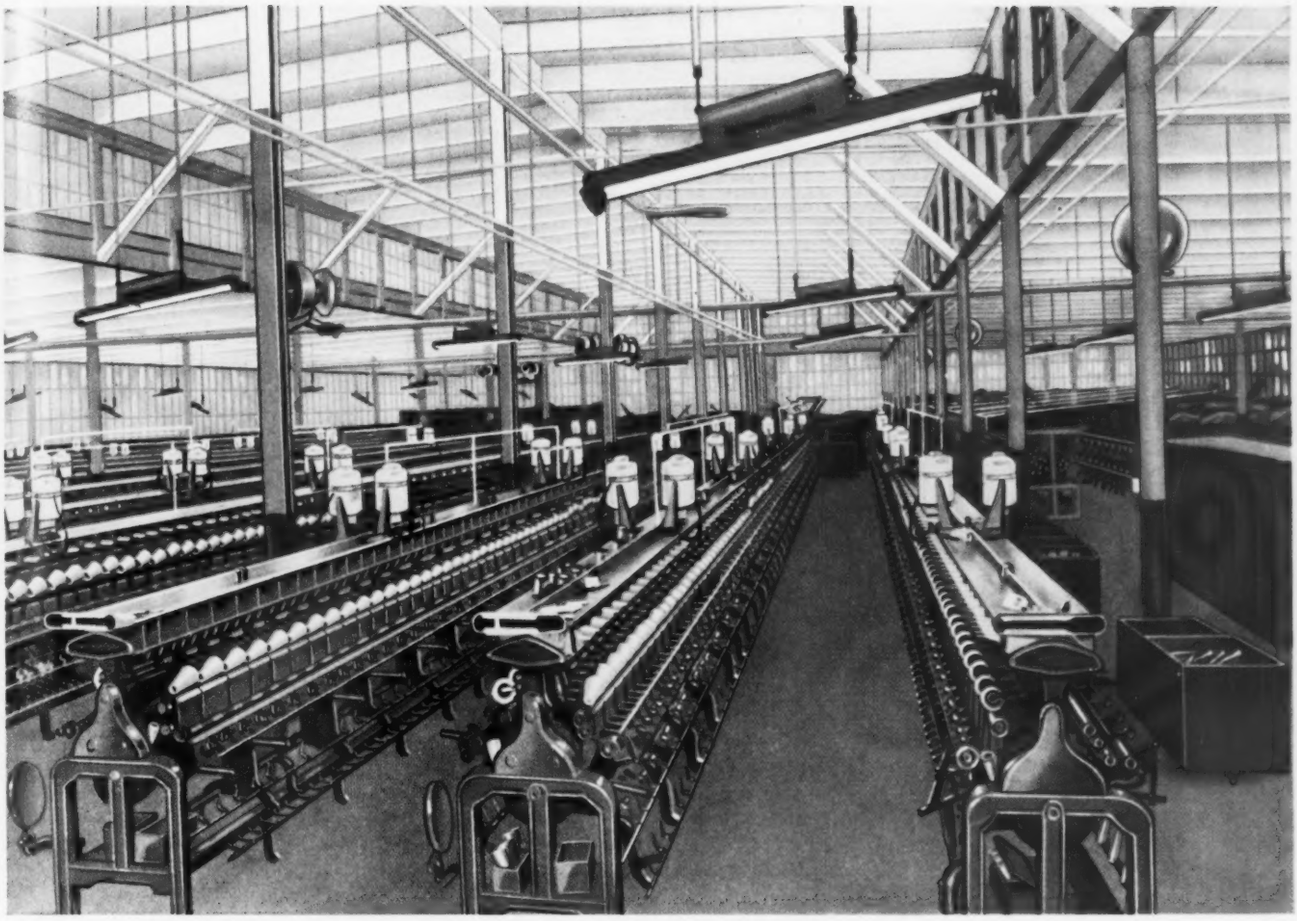
The following general comments on the German coated-fabrics industry are made by the U. S. investigators:

1. Processing speeds, as a rule, are extremely slow as compared with those in the United States. Utilization of labor is definitely inferior, and output per man-hour is lower.

2. Processing machinery, though well maintained except where war damaged, shows nothing novel.

3. All embossing equipment is of the roller type. The average processing speed is about 45 yd. per minute. Con-

(*Continued on page 209*)



● *Mill building of the Aberfoyle Manufacturing Co., Belmont, N. C., after it was repainted according to the principles of COLOR DYNAMICS.*

COLOR DYNAMICS

Scientific use of color lessens eye fatigue among textile workers—improves morale and efficiency.

"HOW CAN the use of certain colors increase efficiency among workers in my plant?"

Our best answer to this question is to refer to hundreds of companies who have applied Pittsburgh's new science of COLOR DYNAMICS.

They'll receive answers like this one from W. H. Crenshaw, Plant Manager of the Aberfoyle Manufacturing Company of Belmont, N. C.:

"We painted our mill buildings according to your principles of COLOR DYNAMICS. Such use of specific color has many advantages. It is helping us to maintain a higher employee morale, a good safety record and efficient production throughout our organization."

During the past year hundreds of plants in many industries have enjoyed similar experiences. Where these principles have been applied, more work per man-hour and more man-hours per worker have been the result. Workers' eye fatigue has been lessened, absenteeism reduced, accidents prevented and production improved.

Pittsburgh has worked out special methods to utilize this *energy in color* on every paintable surface—machines, floors, walls, ceilings and mobile equipment. You can test COLOR DYNAMICS in your plant by applying its principles on one or two machines—or in one department. See the difference it makes in results and morale.

Write for a FREE copy of our booklet, "Color Dynamics" which contains a detailed explanation of the use of *energy in color*. Address Pittsburgh Plate Glass Co., Paint Div., Dept. TW-4, Pittsburgh 22, Pa.

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PITTSBURGH PLATE GLASS COMPANY, PITTSBURGH, PA.

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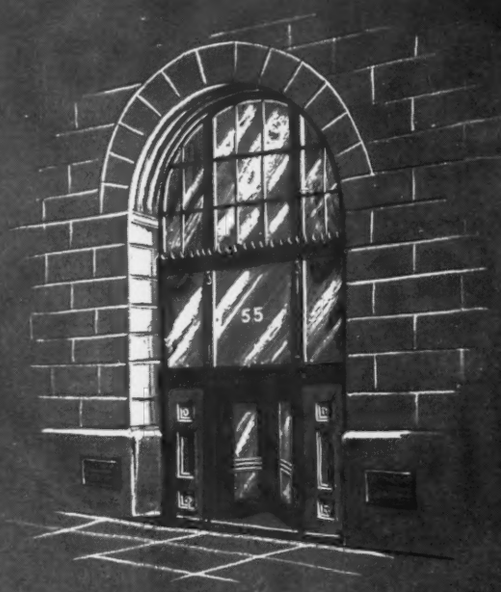

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Puts your sales on a cash basis
Strengthens your cash position
Relieves you of credit losses

55 MADISON AVENUE • NEW YORK

(Continued from page 206)

tinuous automatic or hand-feed embossing presses, as used in the United States, are reported as non-existent in Germany.

4. Coated fabrics made in Germany since the beginning of the war have been based almost entirely on spun viscose rayon.

More Plasticizer Soon

FLEXOL; Carbide & Carbon Chemicals Corp., 30 E. 42nd St., New York 17, N. Y.

"Flexol" plasticizer TOF (trioctyl phosphate) is now available in limited quantities from Carbide & Carbon Chemicals Corp., a unit of Union Carbide & Carbon Corp. Tank-car quantities will be obtainable later this year upon completion of a plant now under construction.

This plasticizer is claimed to develop four important properties in plasticized compositions: excellent low-temperature flexibility, minimum change in flexibility over a wide temperature range, high resistance to water extraction, and low volatile loss. "Flexol" plasticizer TOF is compatible with vinyl chloride, vinyl chloride-acetate and vinyl-butyral resins, and the principal types of synthetic rubber. It is also compatible with ethyl cellulose and cellulose nitrate.

"Flexol" plasticizer TOF can be used in vinyl-resin solution coatings as well as molded, calendered, or extruded compositions. It is effective in spreader and calender coatings for cloth where pliability and good drape are desired.

Activity Recorder

(Continued from page 131)

trical connections to the starting or knock-off mechanism of the machine, it is possible to determine (1) the number of stops, (2) the duration of stops, (3) the frequency of stops for any period, (4) the number of machines stopped at any given period, and (5) the amount of down time for that period.

This recorder will give a graphical record of the quantitative analysis of the production; and if customary time studies are made in conjunction with it, there should result an accurate analysis which could not be obtained by other means.

It is recognized that a complete analysis of any problem should contain quantitative and qualitative studies. For the work in textile mills, the cause of machine stoppage is of secondary importance if the frequency can be accurately obtained. Often it may be necessary to make a special analysis of the production of the machinery in order to

Protect your Plant against the ravages of **FIRE**

Replace your old, worn, dried-out Fire Hose with BRAND NEW UNDERWRITERS LABELED SINGLE and DOUBLE JACKET COTTON RUBBER LINED or Unlined Linen

Fire Hose

Available from Warehouse for immediate delivery!

COTTON RUBBER LINED TYPE: Single Jacket — 300 Lbs. Pressure; Double Jacket — 400 Lbs. Pressure

I. D SIZE HOSE	PER FOOT UNCOUPLED	COUPLINGS PER SET PIN LUG	COUPLINGS PER SET ROCKER LUG	NOZZLES
2½" Single Jacket	$ .50	$3.75	$5.75	$2.25
2½" Double Jacket	.62	4.50	6.50	2.25
2" Single Jacket	.42	3.00	4.50	2.00
2" Double Jacket	.52	3.50	5.00	2.00
1½" Single Jacket	.37	2.50	3.50	1.50
1½" Double Jacket	.42	2.75	3.72	1.50
SPECIFY THREADS DESIRED ON COUPLINGS				
UNLINED LINEN TYPE				
2½"	.50	3.00		2.25
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1½"	.40	2.00		1.50

Specify Threads Desired on Couplings

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We can furnish Fire Hose with NEW Couplings attached to each length . . . or your old couplings can be attached to New Hose without extra charge.

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The Superior Knit Fabric
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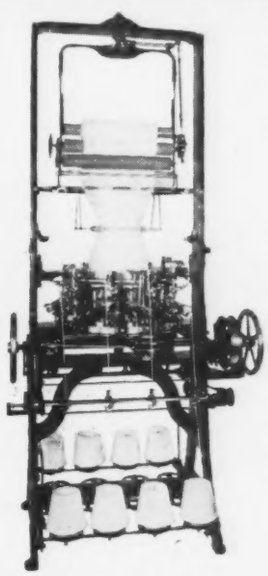
PENDING REESTABLISHMENT OF PRODUCTION OF THESE FAMOUS MACHINES WE ARE OFFERING A RECONDITIONING SERVICE THAT MAKES PRESENT MACHINES PRACTICALLY "GOOD AS NEW"
DIA. 13" TO 25"
6 TO 12 FEEDS



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COOPER'S PERFECT SPRING BEARD NEEDLES AND
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JENKINS METAL CORE CYLINDER BRUSHES

HERMAS VERTICAL BRUSH

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HERMAS VERTICAL BRUSHES

—used in the clothrooms of leading textile mills.

The cores are of cold drawn steel or aluminum.

Bristle is wound on the metal core by a patented process, with flat copper wire and special cement. Nylon bristle if desired.

When bristle is worn down, the core is rewound with new bristle by the Jenkins patented process. The *metal cores do not wear out,* sag, or get out of alignment.

Write for the full story of Jenkins Industrial Brushes

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CEDAR GROVE, ESSEX COUNTY, NEW JERSEY

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ROBISON

Rayon Yarns

Filament and Spun Rayon Yarns dyed and twisted to your specifications.

ROBISON PROCESSING COMPANY, Inc.
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determine the cause of machinery being stopped. This device will not give an accurate unit time that the operator spends in starting the machine in all cases, inasmuch as the machine will be stopped automatically in most cases and as a result the down time of the machine will include: (1) time spent by the operator arriving at the machine, (2) time spent by the operator working to get the machine ready for operation, and (3) time spent in actually starting the machine. In most cases, such as weaving, the last two factors are very closely related and for most practical purposes can be combined.

VARIATIONS PER MACHINE. In order to determine the operation of one style, a chart has been made from data obtained with the electrical recorder. In Fig. 2 is the analysis of the stops per loom hour on 10 looms operating 81 hr. in one week. Loom No. 11 had an average of 3.04 stops per loom per hour and an efficiency of 77.1%. Loom No. 17 showed much less stoppage and operated at 90% efficiency.

The test was operated for only 5 hr. on the first shift Monday and 8 hr. on the second. On Tuesday, the results of 7- and 8-hr. shifts are shown. It is interesting to observe that loom No. 12 operated nearer normal; and although it ran poorly Thursday morning, it ran well the last of the week.

Fig. 3 shows a probability curve of the stops per loom per hour. From this graph it is apparent that 21% of the stops per loom per hour will be the average for the total test. Likewise, 7½% will vary approximately 30% below or above the average, and 10% of the stoppage will be approximately 25% higher or lower than average.

Similar data were obtained and analyzed for an entirely different cloth construction. In this case, 32% of the stops were average instead of 21%. Approximately 8% of the recorded stops varied 30% above or below the average.

These data are of interest in selecting a representative test when conventional time studies are made.

Fig. 4 shows the relationship between stops per loom hour and weaving efficiency from a 50-hr. study of 20 looms. Unfortunately, this relationship is not always recognized and the values do not closely correspond, since the elemental time values will vary according to the nature of the stop and the weaver is not always immediately available to start the loom.

STOPS PER WEAVER. If the recording instruments are to be used for weavers' work assignments, it will be interesting to examine an analysis of stops per weaver per hour, Fig. 5. In the upper

Bring Your Electroplating and Heat Treating Problems to KNOX!

No matter what your requirements, a discussion with Knox officials can easily lead to efficient fulfillment.

One of the finest and most modern electroplating and heat treating plants in the South, stands ready to serve you.

Here is *another* Knox service that more and more textile plants are beginning to depend upon! A phone call might solve your problem.

KNOX Corporation

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ELECTROPLATING AND HEAT TREATING DIVISION
AUGUSTA, GEORGIA

"A *GREAT* Name in Southern Industry"

Left—HILD Tank Type Shower-feed Floor Machine

HILD Floor Machines

KEEP ALL YOUR FLOORS

Clean AND *Slip-Safe*

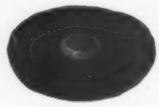
Right—HILD Plain Handle (Standard) Floor Machine

HILD Floor Machines are designed for use with the easily interchangeable attachments pictured below to condition and maintain floors of all kinds . . . either in the mill or in office areas. Scrubbing with the Tank-Type Machine and the patented HILD Shower-feed Brush gets floors cleaner with less scrub-soap solution . . . cuts soap costs . . . does not splash water on machinery or furniture. Scrub-soap solution is fed from the tank on the handle of the HILD Floor Machine to the back of the Shower-feed Brush . . . then passes through accurately spaced holes **penetrating the brush back between each row of bristles.**

HILD Floor Machines speedily scrub open areas in lanes between machines . . . yet are easily guided into hard-to-reach spots under and around machinery. They are sturdily built for long, trouble-free **service.**

HILD Shower-Feed Brush

Brush for Waxing or Polishing



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half of this chart is the hourly fluctuation in weaving efficiency of 20 looms for two shifts operating one week. In the lower half is the variation in stops per loom hour. The best shift performance was on the first shift Friday. No third shift was in operation, and yet the looms ran well the first hour in spite of their having been stopped. It is apparent that a test for only a few hours on one day probably would not give representative data.

Published material on time studies contains very little regarding the problems resulting from multiple-machine jobs. As was previously mentioned, the number of looms stopped at one time is a limiting factor of machine efficiency. An automatic loom has stop motions which operate when a yarn breaks or when certain mechanical parts are not in correct adjustment. When all looms are in operation, the weavers' duties are limited to inspection and a few minor tasks. Therefore, the measurement of the amount of time when a varying number of looms is stopped is of great importance.

To obtain this data by personal observation is difficult when a large number of looms are tended by one weaver. However, the electrical recorder makes an ideal record which not only makes the data easily obtainable but also shows graphically when abnormally poor conditions occur.

INTERFERENCE TIME. Interference time, as previously mentioned, occurs when more than one machine is stopped and the operator is only able to work on one machine at a time. For example, assume that an operator is assigned four machines. At certain periods all machines may be running. Then one machine stops, and the weaver works on that machine. Then a second machine may stop before the other machine has been put back in operation, and interference time occurs. The amount of lost time for this reason will depend on: (1) machine set-up time, (2) number of machines per operator, average time to start one machine, (4) frequency with which the machine stops, and (5) the number of other employees that may assist in the operation of the same machines and the amount of their time.

In order to measure interference time, formulas have been set up by several engineers; but as yet, there are no formulas that have been generally accepted. This is unquestionably due to the difficulty in obtaining the data for proving the formulas. The present purpose is to show that with the use of activity recorders the desired information can be readily obtained, and that unless sufficient data are accumulated, erroneous deductions may result. In order to appreciate the importance of

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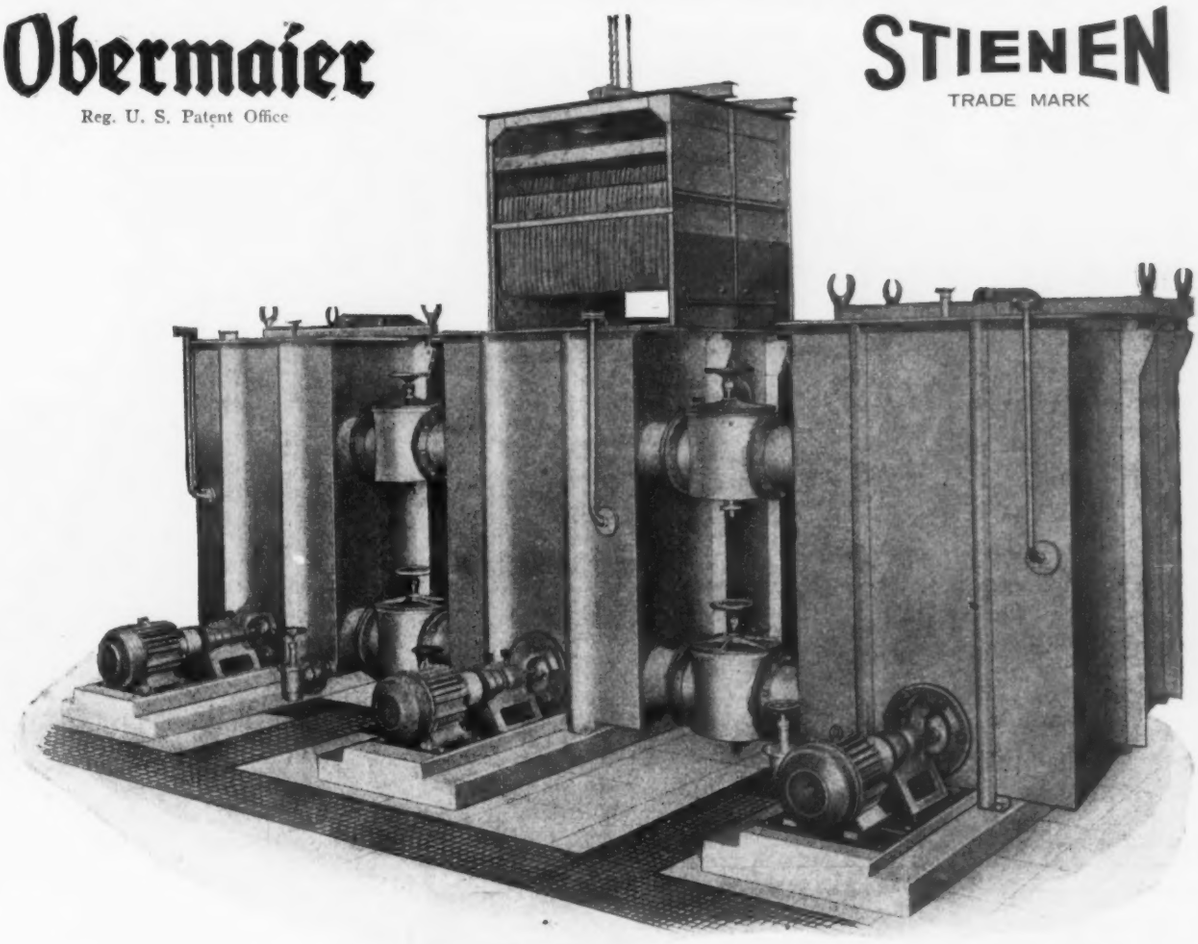

PRESENTING THE NEW MODEL GAWET WORSTED SKEIN DYEING MACHINE

Five units, each, of 200 pounds capacity, can be used singly or, by opening the connecting valves, in any combination of units up to five, for one color.

1000 pound batches, in one uniform color, or five 200 pound batches of different colors, can be dyed at one time. There is no possibility of felting as the yarn remains stationery.

All Stainless Steel Construction

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BUILDERS OF
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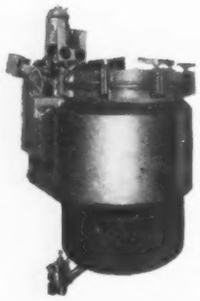


STOCK DYE KETTLE

OPERATION SCIENTIFICALLY CONTROLLED with Temperature, Pressure and Depth Indicators

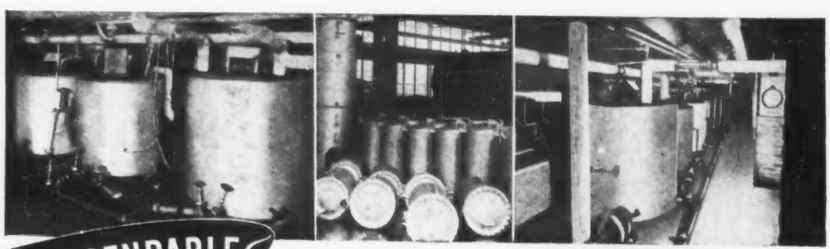
This addition of a panel board with temperature, pressure and depth indicators to the Fleet Line Stock Dye Kettle is a typical example of how Riggs and Lombard is continually improving the design of its equipment.

This improvement in no way lessens the importance of other features, which are as follows:—

1. Will dye wool (noil or coarse carpet stock) as well as cotton and rayon.
2. Main kettle and expansion tank in one unit, eliminating many protruding fittings, and lowering upkeep cost and circulating friction.
3. Tilting or removable cover.
4. Inside of kettle is highly polished stainless steel plate, facilitating unloading.
5. Unloading done by electric or air hoist, which lifts out entire batch on perforated false bottom.
6. Kettle above flooring insulated with rock wool to conserve steam.
7. Pump submerged in dye liquor at all times, eliminating need for packing. Driven by easily accessible vertical motor. Delivers into large duct up through perforated center pipe and over stock. (No agitation of latter).

RIGGS AND LOMBARD

FOOT OF SUFFOLK ST., INCORPORATED LOWELL, MASS.



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Long and wide experience in the design and fabrication of bleaching kiers, starch kettles, and vats and vessels of all types for the textile industry, enables us to offer you superior service on these products.

Our facilities provide for the construction of all types of processing vessels—in stainless clad steel, Monel metal, special alloy steels and kindred materials, with riveted joints and electrically welded.

Submit your problems to our Engineering department—or write for a copy of "Tank Talk."

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PRESSURE VESSELS
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BOILERS—FLUMES
SMOKESTACKS
STANDPIPES
FABRICATED STEEL WORK.

R.D. COLE MFG. CO. Newnan Ga. ESTABLISHED 1854

interference time, it should be mentioned that in a recent weaver's arbitration an allowance in earnings of 7½% was claimed.

An actual example of loom stoppage tests is given in Fig. 6. Conventional time studies were made simultaneously with the activity recorder during 4-hr. periods. Two of these tests were chosen to show the effect of the weaver on the production. In the case of weaver *A*, 88% efficiency was obtained; and weaver *B*, working on the same job on the second shift, obtained 95% efficiency.

Each of the first four curves represent one hour's work of weaver A. These graphical records analyze the number of looms stopped at ½-min. intervals. In the top curve, for instance, it is seen that at the start of the test all looms were running; ½ min. later one was stopped; and at the end of 1 min. three were stopped. Four looms had stopped in the first 1½ min. of the test. At the end of 5 min. all looms were again in operation. After 35 min. all looms were running for approximately 5 min.

It is apparent that the four lower curves representing weaver *B* show much better weaving efficiency, since there is less area enclosed by the curves above the base line.

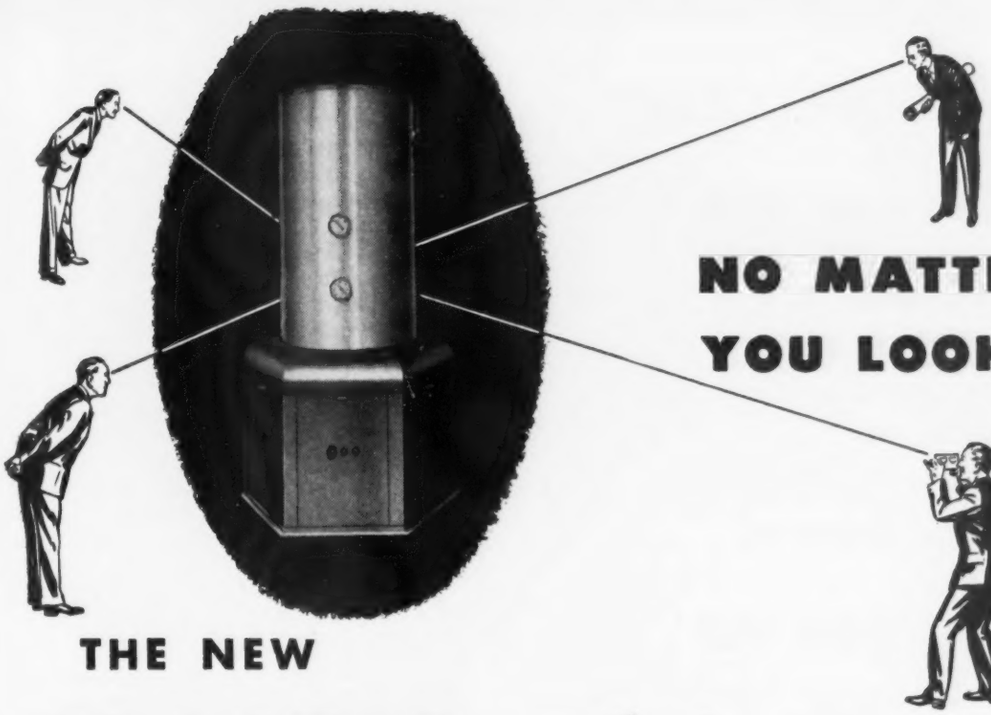
TEST SUMMARY. The summary of these tests is shown in Fig. 7. These illustrate that when weaver A ran the looms for 26.5% of the 480 observations no looms were stopped and 28.3% of this time one loom was stopped. In contrast, weaver *B*, with the higher efficiency, had all looms in operation 48.1% of the time and had only one loom stopped 40% of the time.

It is believed that these data can be used as a basis for determining certain qualifications of the weaver, such as skill, effort, etc.

It should be emphasized that the number of looms stopped at one time does not necessarily indicate the running qualities of the job, but how the job was operated. The data below Fig. 7 are significant; namely, 7% less production and 40% greater unit time, resulting in much greater time lost and the looms not in operation. The interference time in the first case is 5.2% and in the second case 1.2%.

The number of looms that should be assigned to a weaver is governed by the frequency of loom stoppage and by the time spent working on such duties. In addition, there must be adequate allowances for patrolling the job, miscellaneous tasks, and personal time.

The patrol and inspection time frequently established is 20% of the total weaver's time. Modern quality-control methods establish statistical procedures for analyzing the frequency of inspec-



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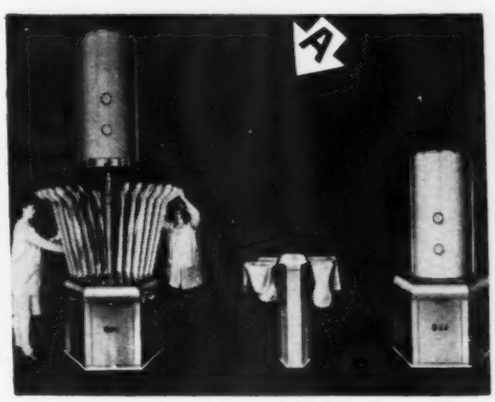
THE NEW

PROCTOR *Preboarding* MACHINES

FOR NYLON HOSIERY ARE TOPS . . .

Consider the new Proctor preboarding machines from a production standpoint and you find that two boarders, operating two machines, are capable of processing 36 dozen pairs of stockings per hour. Consider these machines from the economy of operation angle and you find the labor requirement is one boarder for each machine in operation; you find the machines require an amazingly small amount of steam and electrical current; you find that Proctorized aluminum boards with detachable toes enable the operators to change from one size to another in minimum time. Consider the simplicity of design and you find that the machine occupies only about 10 square feet of floor space; you find that the operators are required to do no laborious work other than placing stockings on boards and stripping stockings when finished. Consider any feature you've wanted in preboarding equipment . . . and you'll find it in these new machines.

Two boarders work together on one machine while steaming takes place in the second. As they finish boarding on the first machine and release switch to close chamber, steaming has been finished in second machine and the chamber is automatically rising. Boarders move between two machines assuring no lost time or motion.



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FALL RIVER, MASS.

tion. Today less inspection is required in many instances than was formerly practiced. It, therefore, becomes of greater importance to demonstrate that other work is not required of the weaver. The methods just described will prove that there is not an excessive amount of looms stopped requiring work by the weaver.

Conventional time studies show the amount of time the operator is not occupied in performing his regular weaving duties to keep his machines in operation. When it is found that additional work can be performed, the total available time may be divided by the number of such time-study readings to obtain an average unit time available for other work. This elemental time used in conjunction with data regarding the average number of machines stopped at one time may be of assistance in establishing the correct work assignment.

STATISTICAL ANALYSIS. The data obtained from this recording device accumulate so quickly that the need for modern statistical analysis of test data soon becomes apparent. By means of such analysis, standard deviation of data can be obtained. In addition, the adequacy of test observations can be calculated. This check upon test adequacy will unquestionably result in establishing new standards for the length of time that observations are necessary. Frequently, substantial savings in the cost of time-study observations will result.

In concluding, it is apparent that the following information is readily available from the charts:

1. Frequency of stoppage per hour or any other desired period.
2. Duration of time for each stoppage.
3. Machine efficiency of any recorded unit or machines for any time period of the test.
4. Comparison of performance of similar machines.
5. Comparison of the performance with similar products.
6. A number of machines in one operator's job can be recorded at one time on one sheet.
7. Variation in operations per shift, comparison of shifts, and comparison of performance on different days or even greater periods.
8. Starting and stopping time of shift.
9. Instantaneous records for immediate investigation.
10. After installation, continuous records at minimum expense.

Other data were accumulated for further analysis which frequently are not easily obtainable, such as: weekly variations per machine, variations for similar machines, stops per operator and

(*Continued on page 219*)

CALCO ACETATE DIAZO BLACK GSH DUSTLESS

Calco Acetate Diazo Black GSH is a non-subliming green-black shade, having excellent penetrating and leveling properties. It dyes well at low temperatures and disperses readily under practically all dyehouse conditions.

The excellent general fastness properties of Calco Acetate Diazo Black GSH make it desirable as an all-purpose product. It is especially recommended for jig and beck dyeing of all qualities of acetate and acetate-mixed fabrics.

Write to Calco for further information on Calco Acetate Diazo Black GSH.

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CORRESPONDENCE INVITED

(Continued from page 216)

production efficiency, and machine interference.

Adoption of activity recorders in the analysis of production-machinery operations will result in improved performance, which will automatically reduce costs. The data obtained from these instruments will serve for work-load assignments based on adequate evidence of frequencies of occurrence.

Textile Operating Executives

(Continued from page 153)

Three mills, using spinning rings ranging from 2⅛ in. to 3½ in. in diameter, reported satisfactory operation of wooden-blade spindles and paper tubes. Mill No. 7 reported that it gets 16% more yarn on the bobbin, while Mill No. 22 stated that this type of spindle "gives a much smoother running package than the steel-blade spindle and wooden bobbins." This mill also found that paper tubes could be doffed as easily as wooden bobbins, after the doffer has become accustomed to them. Mill No. 26 said that it was impressed with the wooden-blade spindle and paper tubes "because of the lack of slipping of the tube on the spindle, the lack of shaking spindles" and the reduction of the oiling cycle to once every six months.

Question No. 12. What type cam is best for running combination winds on spinning packages to be wound on Barber-Colman spoolers?

Five mills reported that they use a warp wind, five use a combination wind, and one—Mill No. 12—uses a regular warp wind in conjunction with a standard combination builder arm.

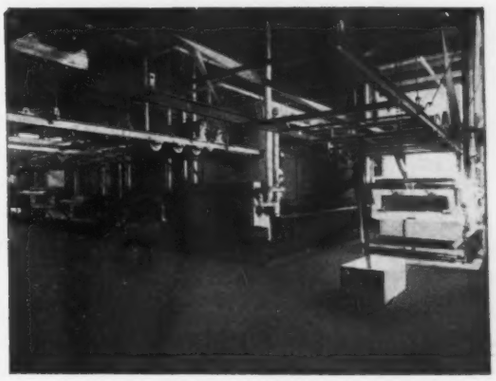
Question No. 13. Have you had any experience in turning down spinning-roll arbors and using a smaller cot?

Of the five mills reporting experience in turning down spinning-roll arbors, four mills turned the arbor down to a diameter of ⅝ in. and one turned the arbor down to a diameter of $\frac{7}{16}$ in.

Question No. 14. What experience have you had with impregnated bearings for cap-bar tips, saddles, and bolsters?

Seven mills reported experience with impregnated bearings, but their results were so varied that no clear picture as to the operating value of the bearings could be drawn. Mill No. 7 got satisfactory use from oilless cap-bar tips and bolsters, but unsatisfactory use from oilless saddles. Mill No. 10 stated that it has been running 466 spindle bolsters for a period of four years on a two-shift schedule without replacing any of them. Mill No. 15 reported considerable trouble in getting impregnated bolsters to fit properly. The bolster pins also

NEBUTTCO AGERS NEBUTTCO



We Are Proud of This Installation

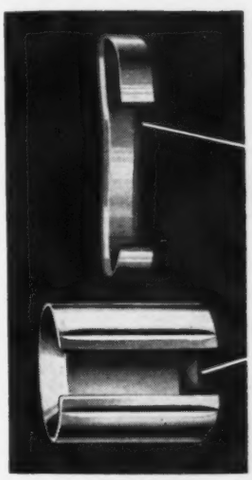
The New England Butt Ager and its strikingly modern features are outstanding in the units illustrated above. Of the machines shown three were furnished by us new, two were overhauled with our new ball bearing roll housings and drives, and one was equipped with our entering chamber.

Space does not permit a detailed description. Why not write us for complete data? We feel sure that the details concerning the New England Butt Ager will interest you.

NEW ENGLAND BUTT COMPANY

PROVIDENCE 7, R. I.

U.S. "Bevel-Edge" Travelers



Guide the Yarn with least friction

Patented "Bevel-edge" gives you longer traveler life and smoother-running spinning and twisting because—

1. ***Less loading up of travelers on cotton.***
2. ***Less fly waste on woolen.***
3. ***Mimimizes split ends in rayon and silk.***
4. ***Lower end breakage—often 8 to 10 less per hour.***
5. ***More even tension—more even yarn.***

U. S. Travelers are Made and Stocked in ALL styles.

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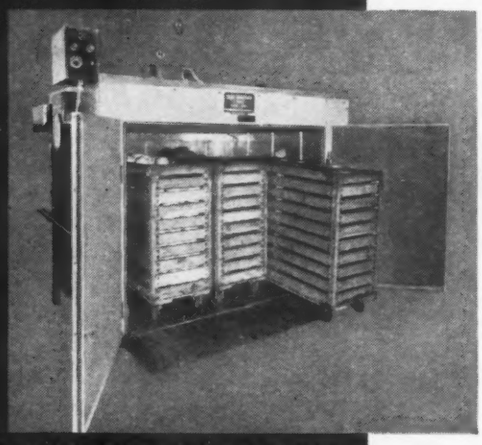

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REGAIN AND TWIST SETTING:
Woolen
Worsted
Silk
Rayon
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Designed to handle yarn in trucks, baskets, boxes, pin boards or trays. Complete automatic control assures uniform results.

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COFFING HOISTS are designed to give sturdy, dependable, efficient, long-time service. They are light-weight, portable hoists and each type has its place in industry, whether it be construction, production, or maintenance work. For complete information see your local supplier or write for our Bulletin Form J4.

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DANVILLE, ILLINOIS

showed a tendency to shear off and allow the bolster to turn.

Question No. 15. Give your experience with spinning cots and aprons made of material other than leather.

Sixteen mills reported favorably upon the use of synthetic cots and aprons, while one mill expressed a preference for leather. Most of the mills favoring synthetic cots and aprons indicated that they have obtained improvements in eyebrowing, in ends down, and in cot and apron life.

Question No. 16. What is your method of cleaning spinning frames? Twenty-three mills answered this question, and their cleaning practices showed considerable diversity. Practically all of them did the major portion of their cleaning by hand and used compressed air on the frames daily, weekly, or bi-weekly.

Question No. 17. What is the best method for cleaning ball-bearing tape-tension pulleys? How often should they be cleaned and how often should they be greased?

The answers to this question are shown in tabulated form in Fig. 5.

Question No. 18. What is your method of paying doffers and spinners?

Of 23 mills answering this question, 17 pay spinners by the hank; 14 pay warp doffers by the hank; and 16 pay filling doffers by the hank.

Question No. 19. When changing yarn counts on a spinning frame equipped with synthetic cots, do you buff the rolls?

Thirteen mills reported that they do not buff the spinning rolls when changing yarn numbers. Two mills stated that they buff the rolls when changing to a lighter number but not when changing to a heavier number.

Longer Loom Life

(*Continued from page 149*)

that, when boring holes through floors, they should avoid all chance of coming into contact with an electrical wiring. Fatal accidents have happened by not considering this danger. Consideration should also be given to the effect of chips falling from the floor above upon machinery or materials which may be below, as considerable damage may be incurred by disregarding this.

LUBRICATION. After the looms are properly levelled, fastened to the floor, and all necessary parts adjusted, the loom should be run with a box chain which will operate all the box cells. All moving parts should be properly lubricated. Care should be observed to lubricate the loom and not the floor. A small

Why be satisfied with a mere 50% output?

... when your floor space is capable of producing at least twice as much ...

Yes! That's the difference between an 8-feed machine and the

WILDMAN
Multiple-Feed Rib MACHINE

On the very same floor space now occupied by an 8-feed machine—not one inch more—you can place this Wildman machine and actually

DOUBLE PRODUCTION
or better

In effecting this remarkable step-up—only about 1/3 additional power is required. And there are many other operational advantages and exclusive features—with a finer, cleaner, more uniform product as a result. Let us give you the details of this Wildman machine. You ought to know about it, now!

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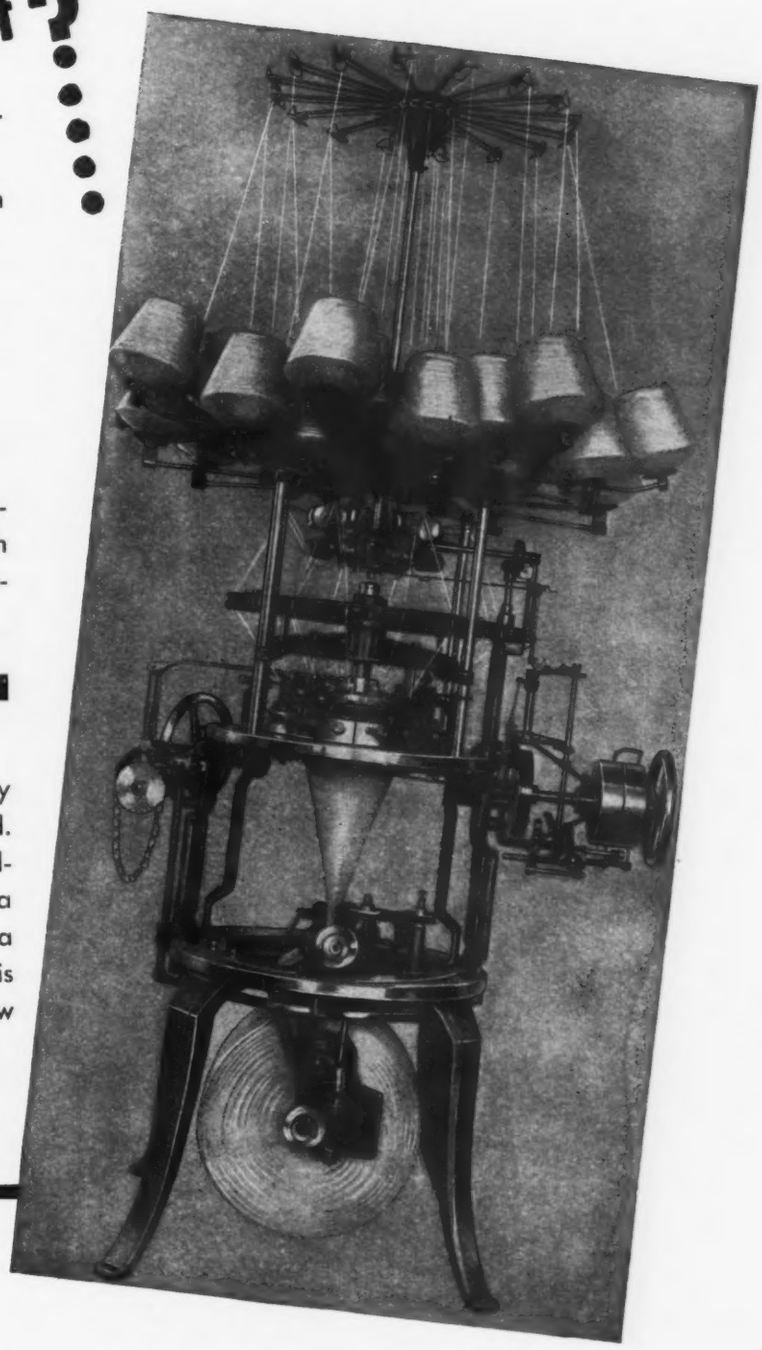

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Drummond Flakes are ideal for the textile industry because they are so easy to use! And you couldn't get a flake that suds better! All this, and at the same time having the qualities of Drummond Soap: high body with low alkali content . . . leaves fabric perfectly clean with softest feel, brighter colors and whiter whites.

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Hard Chromium-Plated Steel Reel Caps, made in sizes to fit your bobbin heads. *Write for quotation.*

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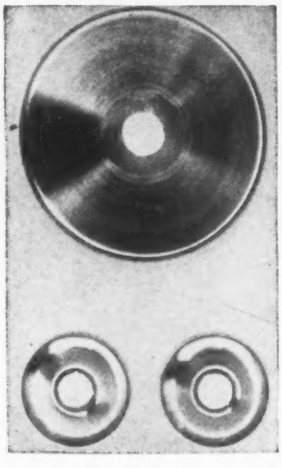

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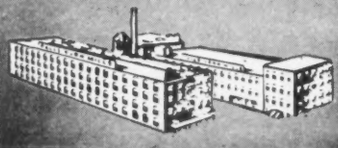

Falls Yarn Mills
WOONSOCKET RHODE ISLAND

amount of grease should be used on all gears. It is not good practice to run the looms empty for any length of time beyond what is necessary to see that all parts are working properly and do not bind. When looms are allowed to run empty and unattended, unnecessary breakage may result.

Shuttles should be matched to size and weight. If most of the work is to be woven with not more than 12 harnesses, it is not necessary to fill all the jacks with harness wires and straps. The extra ones on the loom will only become oil-soaked and collect lint and dirt. A better practice is to equip the looms only with a set of wires and harness straps for the average number of harnesses likely to be used. Extra wires and straps may be stored for future replacements.

Before putting in a warp, stop motions should be checked and whip rolls should be adjusted, so that there will be uniform tension on the raised and lowered warp ends. Authorities differ on how this is best accomplished, but the simplest method is to run a straight-edge from the end of the breast beam to the whip roll and raise or lower the whip roll until the straight-edge is perfectly level. Whip rolls should always be level with the breast beam. After the first warp has been woven out, the loom should be cleaned thoroughly and all parts inspected and tightened.

Flameproofing Cotton

(*Continued from page 119*)

mer. The optimum total chlorine content of the chlorinated material used was determined by adjustment of the weight and weave of the cloth to be treated to give the highest chlorine content compatible with good flexibility in the finished fabric. An emulsion formulation is desirable for reasons of economy, to allow the use of the water-soluble form of urea formaldehyde, and to provide a good vehicle for the dispersed antimony compound or other pigment. In addition, the use of an emulsion formulation reduces fire hazard, an advantage over use of organic solvent solution. The urea formaldehyde resin serves the fourfold purpose of acting as binding agent; inhibiting the photochemical decomposition of the chlorinated resin; inhibiting the photochemical degradation of cellulose (as for example when exposed out-of-doors); and of absorbing small amounts of free chlorine formed, thereby preventing tendering of the cotton from this source.

TYPICAL FORMULA. In Table I is a typical formula for 2.5 yd. per lb., 28-in.

(*Continued on page 226*)

Dura Beau
REG. IN U.S.A. AND CANADA
gives you the beauty of a spring day
Lilting, lively, lovely . . . Dura Beau-finished hose fairly sparkles with the beauty that has been sealed into every pair. Too, Dura Beau helps to resist snags . . . spots . . . and gives you "miles more wear."
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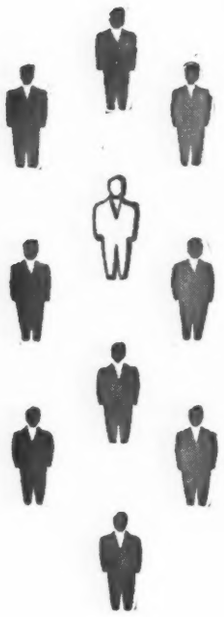

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Every employer can write in his own set of reasons why the Payroll Savings Plan should be continued as a part of his personnel relations program, but the principal advantages are obvious:

A large reservoir of national savings; a strong and stable bulwark against inflation.

An "automatic" thrift habit for the worker; to increase contentment and satisfaction in his job.

An opportunity for the employee to maintain his "share in America" with the safest, easiest, most profitable investment he can make.

An opportunity for the returned veteran to share in the Payroll Plan's varied benefits.

Your employees will require little "selling" on the idea—they are accustomed to their monthly saving habit. With the Treasury Department's savings bond program now in peacetime operation, your partnership is again invited to continue this systematic, convenient means of contribution to a prosperous peacetime future.

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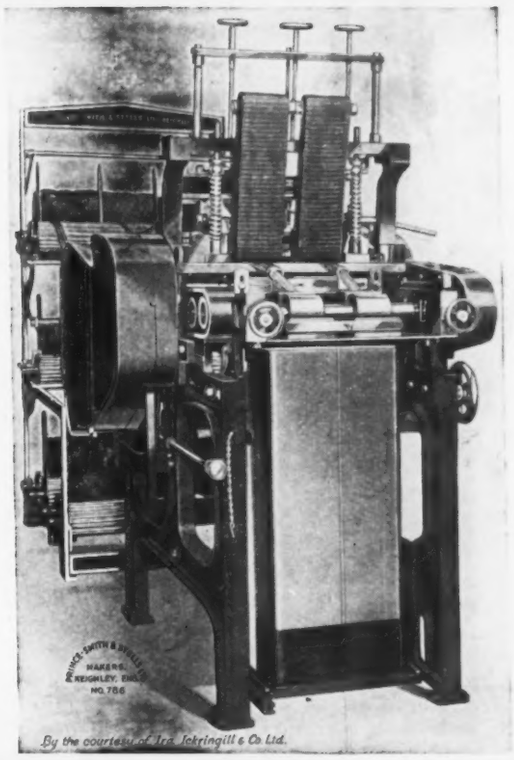

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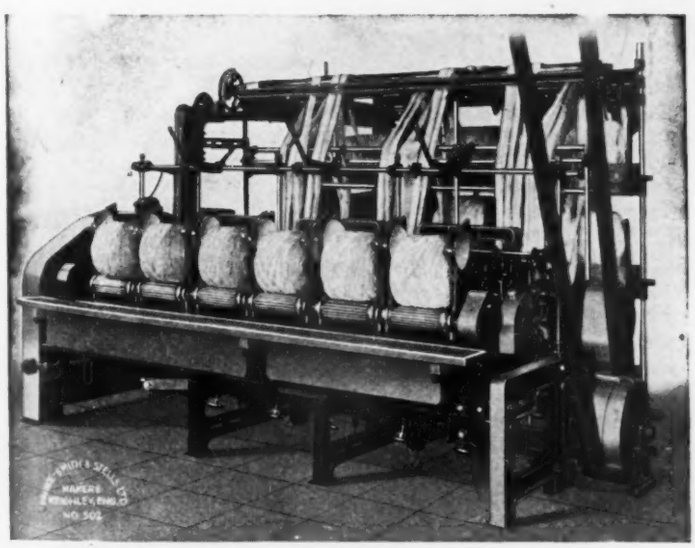

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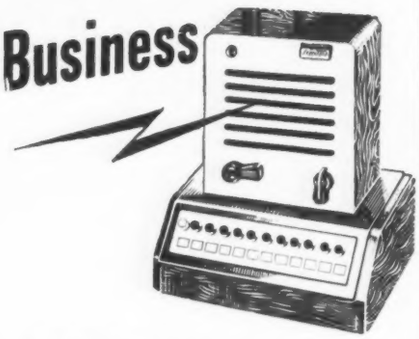

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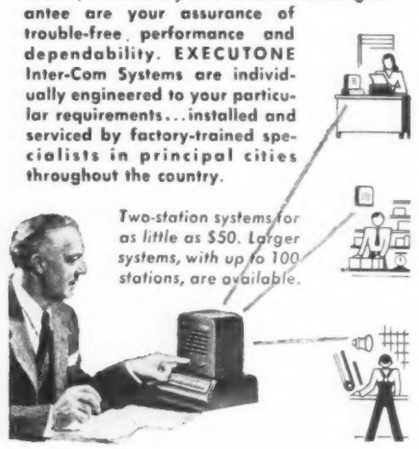

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(*Continued from page 222*)

cotton drill. A water-in-oil type emulsion as indicated is preferred because of somewhat superior stability and uniformity of fabric impregnation under the conditions of use, as compared with the oil-in-water emulsions. The latter, however, may be employed, substituting for the alkyd resin a compound such as triethanolamine stearate or oleate, and has the advantage of being easier to clean from equipment as well as of being readily diluted with water.

The mechanical application of the finish made by the formula just described is relatively simple, requiring only passage through an ordinary 2- or 3-roll padder, and a means for drying, curing, and washing similar to that used with the familiar durable types of water-repellent finish.

The pick-up by the cloth of treating emulsion, determining the final weight increase, is controlled first by the solid content of the emulsion and second by varying the pad-roll pressure. The required weight increase for various types of cloth must be learned by trial. For the 2.5 yd. per lb. drill, used as an example, the concentration as shown in the formula and a roll pressure resulting in approximately 100% pick-up have been found adequate, producing a final weight increase equal to the solid content of the treating preparation—or about 40%.

The feasibility of the treatment just described has been proved by an experimental run on commercial finishing-plant equipment.

PROPERTIES. When finally dried, the proofed material is increased in weight 30 to 60%, depending, as noted above, upon the type of fabric being processed. The resulting fabric hand—which might be described as full, soft, and waxy—is considered suitable for use in certain outer garments such as work uniforms, life-jacket vests, or coveralls. The flame resistance is excellent, being well within the requirements of Federal Specification CCC-D-746; and after 24 individual 30-min. launderings with soap and soda ash at 160 to 170° F. in a commercial-type laundry machine, the fabric cannot be ignited with a lighted match. A characteristic afterglow, however, persists on the average of from 3 to 4 min. Effect of the process on fabric strength is negligible; and resistance to deterioration when exposed out-of-doors is much greater than that of the untreated controls.

LIMITATIONS. Because of comparatively high weight increase and attendant production of the full waxy feel, the treatment described cannot be satisfactorily applied to light-weight materials, such as dress goods, nor to any fabrics that owe their desirability largely to natural physical properties. Application, therefore, is suitable only for fabrics whose usefulness is not appreciably reduced by the treatment. While the finish properly applied is not believed to possess toxic properties, complete toxicity tests, particularly the "patch test," should be made before the treated fabric is guaranteed safe for wear in contact with the skin.

By no means suggested as a solution to the whole problem of permanently flameproofed apparel fabrics, the treatment, it is hoped, may prove of value for certain types of outer garments, pending realization of the ideal method of flameproofing which, without affecting hand, appearance, or strength, will render cotton and other fibers permanently resistant to flame, regardless of water leaching, laundering, or weather action.

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Chinese Industry

(*Continued from page 133*)

about 4,000,000 including the 1,750,000 previously mentioned as formerly operated by Japanese concerns in China. Before the war, the ratio was three-to-one in favor of Japan—not counting the 40% of China's cotton mill capacity which was operated by Japanese interests.

To ease the technological difficulties of textile-mill operation, the Chinese government has offered to exempt Japanese experts from repatriation, but the response thus far has been feeble. The Japanese edge in "know-how" undoubtedly will be a potent factor in deciding the final outcome of the rivalry between the textile industries of both countries.

BID FOR SILK SUPREMACY. China's plans to take Japan's former place in the world's silk market are definitely within the realm of possibility—since Japan is now too seriously harassed by food problems to be able to reconvert a substantial acreage of farmland to mulberry cultivation.

China's distinct disadvantages are the backwardness of agricultural methods,

(*Continued on page 229*)

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(*Continued from page 226*)

lack of uniform quality, and the absence of reliable silk-conditioning stations.

At the moment of writing, considerable amounts of raw silk are awaiting shipment in the interior; but official red-tape, lack of transportation, and the uncertain exchange value of the American dollar in terms of Chinese currency are delaying China's bid for world silk power.

Such a delay, textile experts contend, may be fatal—because consumers in the U. S. may soon be swamped with nylons and other synthetics which had been diverted to war uses. Unless natural silk is reestablished quickly on a basis of fair price and abundant supply, changing buying habits may relegate it to a subordinate position.

It is, however, expected that in consequence of a decision recently reached by the Executive Yuan, the lifting of government control on the purchase and sale of raw silk, as well as of wool and tung oil, will be announced in the near future. This would at least free transportation, making exporting possible—within existing technical limits.

Nearly six months after V-J Day, almost all of China's important reconstruction plans remain in the visionary stage and have not yet developed into clear-cut blueprints. With reference to textiles, however, it has become obvious that the original long-range policy for heavy-industrial development has been modified in order to divert all energies to the reconstruction and expansion of the silk and cotton business.

German Dyeing

(*Continued from page 143*)

particular interest was the one-bath method for jigs and winches and a special device for regulating the acid on continuous development. Continuous ranges are mostly homemade but they all follow the same general scheme —a pad for impregnation, a small box and nip for the sulphuric acid, a series of sky rolls for development, and a small soaper of four or more boxes for neutralization, washing and soaping.

VAT DYEING. *Pad-Pigment:* Methods follow those used in the United States with several exceptions. Pad and jig speeds are much slower and jig rolls and boxes smaller. They usually go two to four ends more than we do in the United States.

The temperature of the padding liquor is high, in order to obtain penetration, being 75 to 80°C. Also, for even medium shades, jig rolls are often padded two or three times. There is no drying in between.

Continuous: This method can be dismissed by saying there are no continuous vat-dyeing machines in Europe. Their small runs have not encouraged the installation of such units. They do the same range of shades which we would run continuously, with anthrasols or else pad-jig. It must be remembered too, that many fabrics, even if the yardage were large enough, would not stand a passage through a continuous machine and must be dyed slack.

Vat-Acid Method: This method was originally developed for packages because of the difficulties encountered in uniformly distributing the normal pigment particles evenly throughout. It was later extended to the dyeing of piece goods. Briefly, the vat pigment is suspended in water, reduced with caustic soda and hydrosulphite, and the bath slightly over-neutralized with acetic acid, thus precipitating the acid-leuco in a very finely dispersed form. In piece goods dyeing, the acid-leuco may be padded on or applied on the winch, or, padded, dried, and developed continuously.

The acid-leuco possesses the following properties:

1. Very fine particle size which aids in penetration.
2. No fiber affinity, which might cause migration.
3. Rapid speed of development, which cuts down wash-off in jigs and winches, reduces time of dyeing, and makes possible the acid-leuco, electro-fixier method of dyeing.

DETAILS OF ELECTRO-FIXIER METHOD. The cloth is padded on either a two- or three-bowl pad through the prepared acid-leuco pigment and dried on either cans or a hot flue, though the hot flue is preferred because of migration tendencies. It was pointed out that the cloth could be run wet also, with a proper feed adjustment on the caustic pad. The free vat-acid leuco has no affinity whatsoever for the fiber, and, since its particle size is much smaller than that of the normal vat pigment, danger of filtration and migration is greater than with the standard pastes and powders.

After drying, the cloth is carried to the development range where it is run through a caustic soda and hydrosulphite solution on a two-bowl pad. From the pad it passes directly into the electro-fixier where the color is reduced and dyeing takes place. The cloth then enters a conventional five-box soaper where it is soured or oxidized, washed, soaped, and washed again. It is now ready for drying and finishing.

There have been run, in constant production, weights ranging from print cloth types to heavy shoe ducks. In fact, the vat-acid leuco, because of its small particle size, recommends itself to penetrating heavy, thick cloths or

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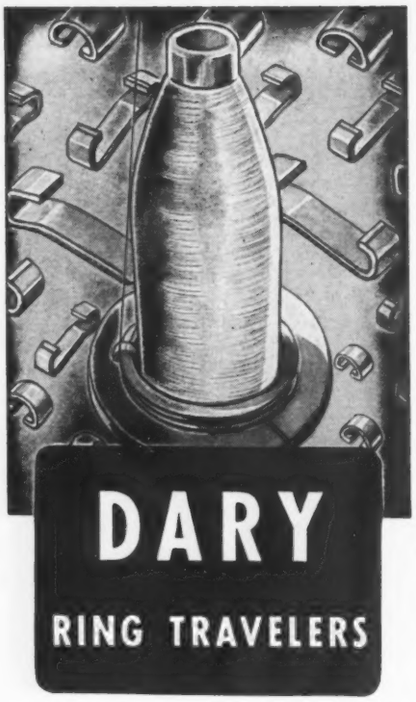

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those made from tightly twisted yarn. Cotton, viscose staple and filament, cotton-rayon mixtures, and pure linen constructions have been dyed satisfactorily.

It was stated that filament-rayon taffetas were dyed without migration. Also, it was claimed, dead cotton could be covered. Preparation of these fabrics had to be uniform and thorough, otherwise a mottled condition would show up, due largely to the lack of affinity of the acid leuco and its quick fixing speed.

The caustic pad is of the usual two-roll immersion type but fitted with a very small box so that the liquor could be changed frequently. It is run with a very light set to permit of a high pick-up. Temperature of the pad liquor is kept at 60°C.

The electro-fixier unit is an iron chamber approximately 4½ × 8 ft. on the floor and 4½ ft. high, sloping from the entering to the delivery end to a height of about 3½ ft. It is located directly behind the caustic pad. The cloth enters through a slot in the bottom and goes to the top, where it makes seven passes around idler rolls, moving in a horizontal rather than in a vertical direction. On the entering end are located several perforated steam pipes for steam injection. The two sides are lined with steam coils for both insulation and heating purposes. On the top are two electrical heating units covering almost the entire area. These units are composed of resistance coils and develop quite high temperatures. There is a trap door in the bottom of the unit to permit of threading up, repairs, etc. None of the rolls is driven, and the goods are pulled through by a pair of driven rolls. The machine probably holds 15 to 20 meters of cloth which remain in the electro-fixier for some 2 to 2½ min., even though dyeing takes place almost immediately.

On leaving the electro-fixier, the cloth travels a distance of 25 to 30 ft. before entering a conventional 5-box open-width washer with nips between each box. Here the cloth is either soured or oxidized in the first compartment, after which it is washed, soaped, and washed again.

The entire unit is threaded up with a long lead and heat is turned on in the electro-fixier. When a temperature of approximately 80°C is reached, the steam injectors are turned on to flood the unit with steam. After running on the lead until the air in the unit is displaced, the steam injectors are turned off and the cloth to be developed is started through. The important thing about the operation is to have as wet a pick-up as practical off the pad, so that in the fixier enough water is evaporated into steam to maintain a saturated atmosphere at temperatures around 130°C. When handling some cloths with low moisture absorption, it is necessary to use the steam jets during the run. These are controlled by hand, according to the amount of steam needed. With the majority of fabrics, however, they are not used at all since enough steam is produced by evaporation of water from the goods themselves.

The following points should be stressed:

1. At no time should the cloth temperature exceed 80°C.

2. The cloth should always be damp on leaving the machine. The Germans did not make tests or have a specific moisture figure but stated that as long as it is definitely damp to the hand, it is all right.

3. The cloth must contain residual hydrosulphite on leaving the electro-fixier. This is checked by touching Yellow-G paper at frequent intervals to the fabric.

The entire unit is operated at an average speed of approximately 30 meters per minute.

The vat acid, electro-fixier continuous method of dyeing follows along the same general line as some of the latest continuous procedures developed in this country.

OPA Makes Gesture

(*Continued from page* 155)

fied the mill to charge the previous high band of prices. A mill may charge the Band A prices as soon as it places such a wage structure into effect, according to OPA ruling.

INCENTIVE PREMIUM. In addition to general increases on major items, an incentive premium of 5% is being granted on specified cotton fabrics urgently needed. These goods are designated by OPA for low-cost apparel, work clothing, fabrics for industrial and agricultural uses. CPA's part in the joint action directs mill operators now turning out less essential fabrics to shift back to the more needed ones if they have produced these at any time during the four years ending Feb. 28, 1946 (Amended L-99). Manufacturers are required to complete turnover by Apr. 15 if looms must be changed to a different sley and by Apr. 30 if warp yarn numbers must be allotted. OPA will also require a percentage of certain classes of goods, to which the 5% incentive price applies, to be sold in the gray for industrial and agricultural uses. On such goods, no converting markup can be taken.

At this writing, OPA is preparing to issue an order to take care of "hardship" cases (SO-149) which will be

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Sodium Sulfide	60 to 62%
Sodium Chloride	1.5% Max.
Other Sodium Salts	2.0% Max.
Iron	8 ppm
All other metals	1 ppm Max.
Water of Crystallization	36.5 to 34.5%

Shipping Containers, Drums 90 and 350 lbs. net.

Sodium Sulfhydrate, NaSH, *a light yellow colored solid in flake form. Soluble in water and alcohol, insoluble in ether.*

Analysis

Sodium Sulfhydrate	70 to 72%
Sodium Hydroxide	0%
Sodium Sulfide	1 to 2%
Sodium Chloride	1% Max.
Other Sodium Salts	1% Max.
Iron	5 ppm Max.
All other metals	1 ppm Max
Water of crystallization	28 to 26%

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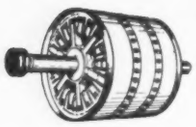

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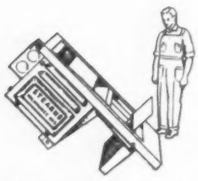

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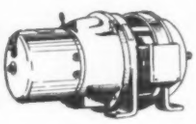

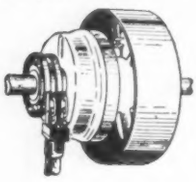

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The goal of the joint OPA-CPA program is to increase production 50% over last year's third quarter low point on production of staple cotton fabrics.

While Mr. Bowles spoke of the new ceilings as "final," it is taken for granted in Washington that this is tentative and to some extent is wishful thinking. It depends upon a variety of factors such as OPA's ability to stabilize the market price of raw cotton; the extent to which the new price structure serves as a stimulant for the projected increase in production; and, above all, the form and conditions under which the Price Control Act is enacted after the expiration of the present law on June 30 of this year. This much is certain now. Price control will be enacted; but, whether the extension is for one year or for nine months, the new legislation will be hedged with safeguards and modifications. While these modifications are not expected to be crippling, they will compel a new approach and more realistic appraisals of applications for price-ceiling adjustments.

OUTPUT per Man-Hour Shows Virtually No Gain

HIGHLIGHTS: *Gain of only 3/10s of 1% made in 5 years while unit labor costs have gone up 61% in same period—Employment pick-up at turn of year indicates improvement.*

By JOSEPH GAMBATESE, *Washington Bureau, TEXTILE WORLD*

ANY HOPES for greater productivity or reduced labor costs in the textile industry cannot be found in statistics covering the war period. The Bureau of Labor Statistics reported that in cotton textiles the output per man-hour in 1944 increased only 0.3 of 1% above 1939, while unit labor costs went up 61.2%. In fact, while unit labor costs increased steadily, man-hour output climbed 2.7% in 1941 then gradually receded almost back to the level existing in 1939.

Wage increases in textiles are more readily reflected in higher prices because of the high labor cost in the industry in relation to value of the product. Labor costs have averaged about 25% in cotton (ninth from the top of the list), while the average for 40 manufacturing industries was about 16% in 1939.

The unions will accept technological improvements or other devices which reduce labor costs, but they will insist on sharing in the savings.

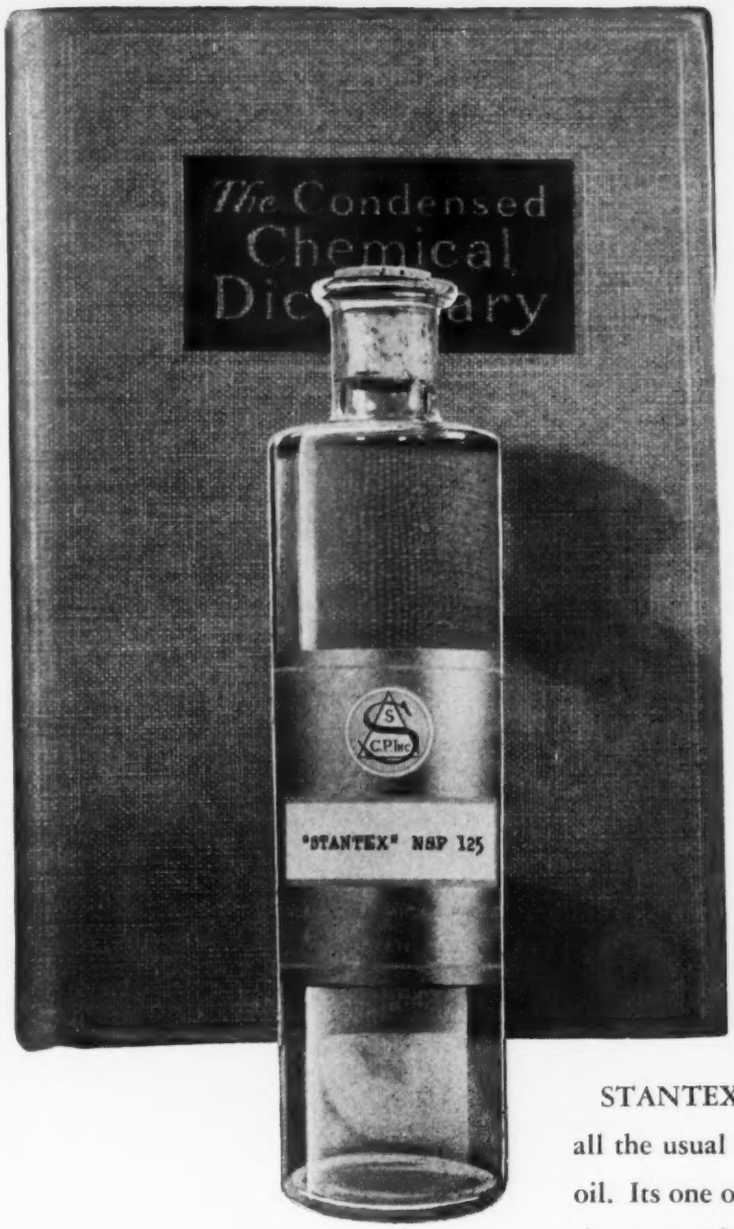
Employment pickup in textile mills led all other light industries at the turn of the year, rising 14,000 to a level of 1,104,000. Cotton goods and woolen-and-worsted industries were primarily responsible for the gain, according to BLS, which attributed it to completion of reconversion and increased reservoir of labor. The employment was still 3.4% below 1939. With higher wages, more labor should be available.

COTTON SURVEY. BLS reports in a special survey of the cotton-textile industry that about a third of the more than 400,000 employees are covered by union agreements—60% in the North and 20% in the South. The CIO Textile Workers Union of America is credited with four times as many members as the AFL United Textile Workers.

The survey is based on an analysis of 45 agreements in effect last year, covering 80,000 workers, and deals with various provisions included in the agreements. None of the contracts provides pay for holidays not worked.

Organized labor in the textile field as well as in most others is looking ahead beyond the wage demands. As the months pass the emphasis will shift from wages to other concessions, some involving costs, some not.

Employers will hear more about health insurance, sick leave, better vacations and better working conditions. Heavy industries will feel the brunt of guaranteed annual wage demands. Textile unions will let the others set the pace on this one.



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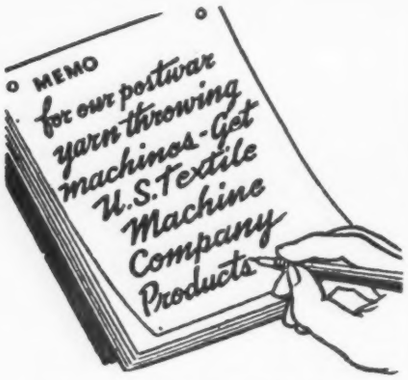

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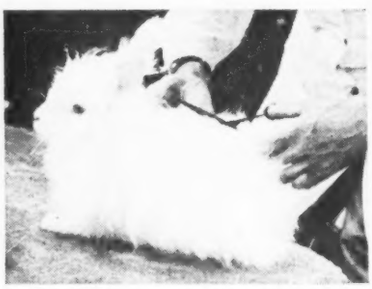

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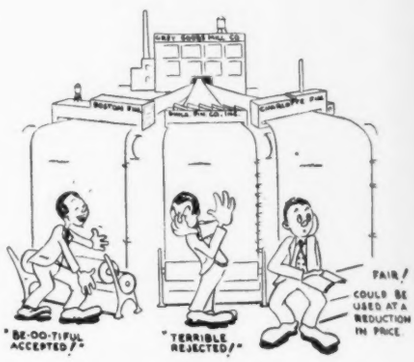
VECTOGRAPHS Used To Identify Textile Defects

HIGHLIGHTS: *Three-dimensional pictures aid in naming and evaluating—Inspection gages being worked out by Quartermaster — Process widely applicable.*

THREE-DIMENSIONAL PICTURES have been enlisted in the effort to classify, evaluate, and name textile defects. Considering the problem that the Army Quartermaster Corps had in coordinating fabric evaluations by its inspectors during the war, it is natural that the Corps should be active in developing a system of visual-inspection gages; but some such system is no less needed to coordinate inspection in a group of mills or to clarify discussions between any two parties, such as civilian buyer and seller.

From time to time, TEXTILE WORLD has published samples of textile defects for the threefold purpose of identifying them, explaining their causes, and telling how to overcome or correct them. The Quartermaster three-dimensional pictures, called Vectographs, add depth to pictures of defects. Of course, neither Vectographs nor ordinary photographs show true color, feel, strength, or size; and, the Corps realizes, the proper evaluation and naming of defects is a most important part of any visual-inspection gages they might supply their inspectors. At present, the Corps is in the process of identifying, evaluating, and photographing defects.

SYSTEM EXPLAINED. At a meeting of the American Association of Textile Technologists, Inc., this month, Harry F. Schoenfelder, experimental engineer, Army Quartermaster Corps, explained the theory, taking, and evolution of Vectographs as visual-inspection gages.



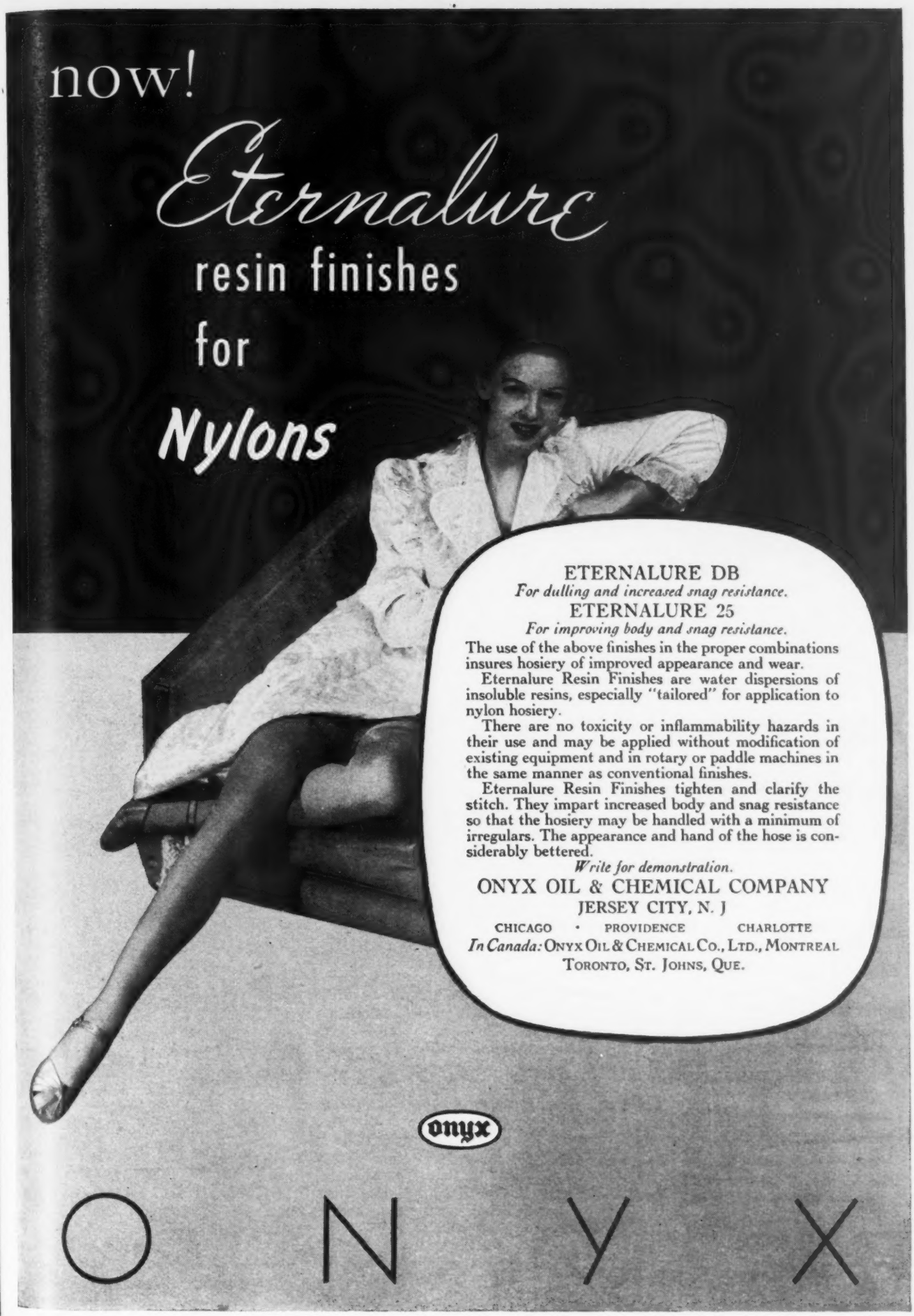
Without good standards, inspectors can vary greatly in their evaluation of textiles, as is shown by this Quartermaster Corps sketch.

Arguments can be avoided if both parties have available a workable guide as to acceptable and unacceptable fabrics.

Vectographs differ from the old stereoscopic slides in that only one picture, not a pair, is needed. Polarized light is used both in taking the pictures and in viewing them. Polaroid glasses are used, of course, in looking at the pictures to get the effect of depth. When special glasses are not used, the Vectographs appear much the same as two-dimensional photographs.

Use of Vectographs by the Quartermaster for identification of textile defects is quite recent. Prior to the latter part of 1943, instructions to inspectors were largely oral. Although making Vectographs is not nearly so simple as taking ordinary photographs, the process is not too complicated or expensive for general use by textile manufacturing plants.

In studying textile defects, the Quartermaster found that some that formerly were considered objectionable were not so serious as former grading standards would indicate. An example is shade bars which often disappear when a fabric is cut up and made into a uniform.



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For dulling and increased snag resistance.

ETERNALURE 25

For improving body and snag resistance.

The use of the above finishes in the proper combinations insures hosiery of improved appearance and wear.

Eternalure Resin Finishes are water dispersions of insoluble resins, especially "tailored" for application to nylon hosiery.

There are no toxicity or inflammability hazards in their use and may be applied without modification of existing equipment and in rotary or paddle machines in the same manner as conventional finishes.

Eternalure Resin Finishes tighten and clarify the stitch. They impart increased body and snag resistance so that the hosiery may be handled with a minimum of irregulars. The appearance and hand of the hose is considerably bettered.

Write for demonstration.

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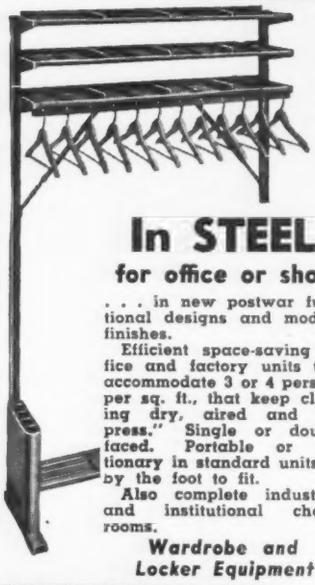

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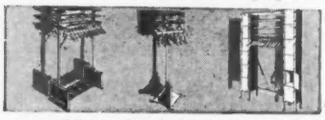

Write for Bulletin No. G-21

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Manufacturers of:

Replacement Parts for all types of Warping Equipment, including Combs as formerly made by a Warping Machine Manufacturer in Lowell.

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Intermediate Dresser Stand for Woolen and Worsted Warp Yarns

Electric Stop Motions for Silk Warpers

All types of Expansion, Warper, Beamer and Slasher Combs

Expansion Neck Reeds

News of the month

Outerwear Knitters Hear About Yarn Supply. Yarn scarcities in the outerwear industry are not so much the result of a dwarfed supply as of greatly enlarged need, according to speakers at the annual luncheon meeting of the National Knitted Outerwear Association in New York on Mar. 21. Arthur Besse, president of the National Association of Wool Manufacturers, spoke on woolen and worsted yarns and indicated that his figures showed that outerwear knitters were getting their share of the available supply and that nothing beyond gradual increase was in sight. Paul Halstead, secretary-treasurer of the Cotton-Textile Institute, told the knitters that while the supply of cotton yarn should increase, the amount available will still be insufficient to meet demand. Stanley B. Hunt, head of Textile Economics Bureau, speaking for rayon, pointed out that spinnerettes normally produced 24 hours a day and no increase could be expected until the plant-capacity increases planned for late this year and 1947 come in production. Leo Cherne, executive secretary of the Research Institute of America, said that outerwear mills should experience a 25 to 30% increase in demand carrying probably into 1947. Looking further ahead Mr. Cherne anticipated a real battle of fibers instead of the current battle for fibers. The annual banquent was the usual sell-out with Mayor William J. O'Dwyer of New York as the guest speaker. Oscar W. Fishel of Standard Knitting Mills, Cleveland, Ohio, was reelected president.

Wants OPA to Give Opportunity for Production. Challenging OPA to abide by the same laws it seeks to enforce, Roy A. Cheney, president of the Underwear Institute, offered the House Banking & Currency Committee a three-point program designed to give the underwear industry an opportunity to swing into mass production with the assurance of a reasonable profit. Mr. Cheney charged that "if the government were attempting to destroy the competitive system and business and industry, there would be no more effective pattern than the Federal policies and regulations in effect today." He urged that the House group in recommending continuance of price controls specifically provide that: "1. The Maximum Average Price Regulation, and any and all regulations issued in whole or in part in pursuance of the cost absorption policy presently being administered be withdrawn and rescinded. 2. No maximum price shall be established or maintained for any commodity below a price which will reflect to producers, manufacturers, wholesalers, distributors, jobbers, and retailers a recovery of cost per unit based on current cost plus a normal prewar margin of profit. 3. Manufacturers be given free access to courts for trial and judgment on OPA matters, a right now denied.

Indorses Bulwinkle Bill. William D. Anderson, president of Bibb Mfg. Co., Macon, Ga., spoke recently before the Senate Committee on Interstate Commerce urging the enactment of the Bulwinkle Bill relating to railroad freight-rate making. He said that the rate conferences "protect the shippers, the receivers, the railroads, and the general public." He also said that he knew of no collusion whatever by the Association of American Railroads and the rate-making bureaus, as opponents of the bill charge.

May Discard MAP. The House committee voted on Apr. 3 to repeal MAP as of July 1, 1946, in proposed law relative to OPA's future. It seemed likely that OPA would be required to close up shop not later than June 30, 1947.

Scores New York Taxes on Outside Business. W. Ray Bell, president of The Association of Cotton Textile Merchants of New York, commended the Financial Group of the Association at a dinner meeting recently for its opposition to "additional unwise city taxes and the distortion in the application of current laws". Harold Elliot, of Wellington Sears Co., New York, chairman of the group, presided. Dwight W. Michener, associate director of research of the Chase National Bank, spoke on the loss of economic morale in the nation's working force during the war, and Thomas Jefferson Miley, secretary of the Commerce & Industry Association of New York, talked on the position of minority groups in state legislative activities.

Cotton Tried for Refrigerator Car Insulation. Cotton insulation, potential annual market for over 500,000 bales of short staple, low grade cotton, has taken another forward step. The Illinois Central Railroad shops at McComb, Miss., will install the new flame-proof cotton insulation in a new refrigerator

Product improvement does not need to depend on new materials or methods. Many reliable "stand-by" materials often hold the answer. For example, a more dependable Caustic Potash can add to the essential value of soap . . . pharmaceuticals . . . perfume bases . . . dyes . . . chemicals . . . engraving and lithographic materials and other products and processes. Out of its pioneer experience and by means of exceptionally rigid methods of control over the production of "KOH", Niagara is constantly striving through research to help customers achieve better results in its use.

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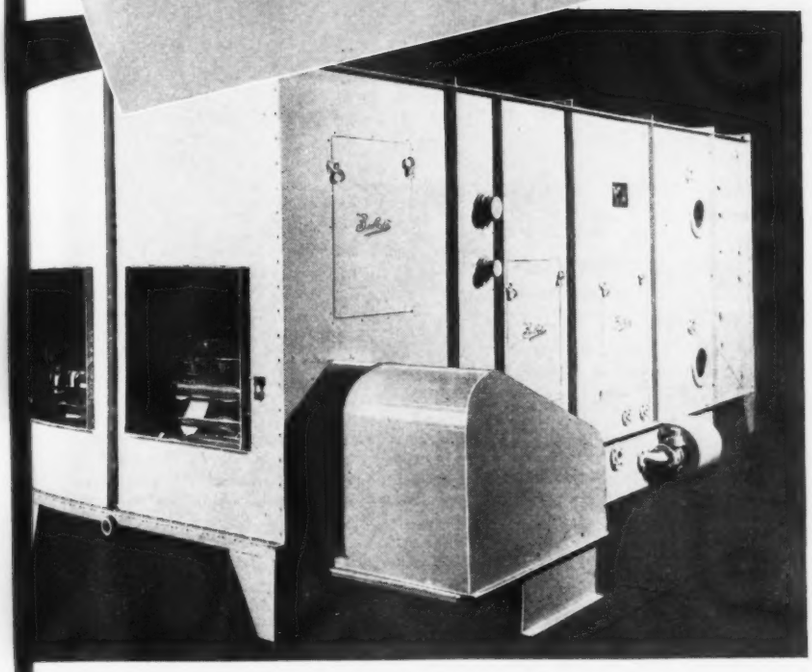
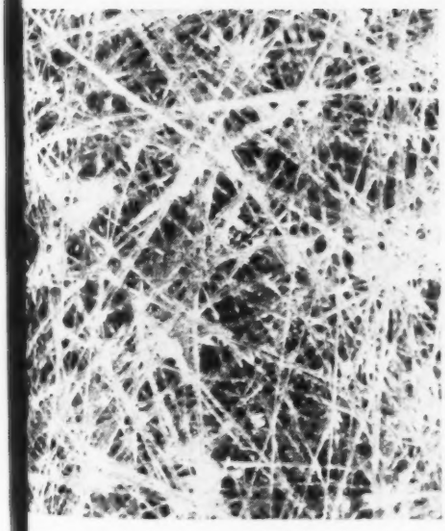


Your interest in dust-free, properly humidified and tempered air is no doubt also concerned with the cost of putting such air into your plant.

With more than forty years experience in building air-conditioning apparatus for many of America's most prominent industrial plants, Buffalo engineers have concentrated on developing low-cost equipment for this service.



The Glass Filters used in Buffalo Wet Glass Cell Air Washers are contained in removable metal casings. They may be removed and cleaned in cleaning solution, restoring their original cleaning efficiency.

The Buffalo Wet Glass Cell Air Washer, announced several years ago, is the most recent addition to the complete "Buffalo" line.

This Unit gives superior air cleaning, plus all the accepted qualities of air conditioning. Its first cost is moderate. Its operating cost is low. Already hundreds of installations are in service, with universal satisfaction.

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Do you know that—

The rat propagates at such an explosive rate that the reproduction potential of one pair of rats in a 3-year period is some 350 million progeny.

Do you also know that—

You can be rid of rats and mice without the worry that the use of poison involves—without the inconvenience of setting and cleaning traps—and without the expense of exterminating service.

YOU CAN BE YOUR OWN EXTERMINATOR

We have prepared a bait (in cookie form) that contains red squill, a drug from the Mediterranean, which is harmless to humans and domestic animals, but has the special qualities that mean DEATH TO THESE RODENTS. The red squill, being a slow-acting drug, practically eliminates the possibility of rodents dying indoors. They are forced to go outdoors in their frantic search for water.

Try our Trial Order—40 baits to box $2.00

No. B-1501—	**100**	**Baits—$**	**4.00**
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No. B-1503—	**500**	**Baits—**	**12.50**
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Your purchase order or check will assure you prompt delivery. We pay all shipping charges.

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car, resulting in saving in weight of 1½ tons for the car and improving heat resistance in the various car surfaces from 25 to 50%. Normally, 8,000 new refrigerator cars are built each year with the same number being rebuilt, for a total of 16,000 potential cars annually. Insulation engineers have told the National Cotton Council that in weight alone, cotton insulation has an advantage over the principal insulation material previously used. While approximately 3,500 lb. of hair felt are required to insulate a car, the same job is accomplished by 800 lb. of cotton.

Poll Favors Limiting "Rayon" to Cellulose-Base Synthetics. In a poll of the members of the American Association of Textile Technologists as to whether American or British definitions of the term "rayon" were desirable, the definition of the ASTM which limits the word to synthetic textiles of a cellulose base was favored by 87% of those voting. Only 8% voted for the definition of the Textile Institute of Manchester, England, which would describe all fibers not of natural occurrence as "rayon." Of those voting 5% took exception to both British and American definitions.

New Fiberglas Uses. Two new uses for Fiberglas fabrics are currently reported: 1. Ironing board cover, desirable because able to withstand temperatures from 300° to 600° F. without discoloring or burning. The iron may be left on a special Fiberglas pad at the large end of the board without use of special metal holder. 2. Ribbons for use by florists, desirable because not subject to change by reason of moisture or excessive humidity. Continuous filament in light colors is woven and slit to desired width, about 4½ in.

Chemists Meet. The Southeastern Section of the American Association of Textile Chemists & Colorists met at Ralston Hotel, Columbus, Ga., April 20. M. T. Barnhill, superintendent of dyeing at Avondale Mills, Sylacauga, Ala., presented a paper on "How Different Types of Dyestuffs Affect the Rate of Deterioration of Cloth Exposed to Weathering," and Paul K. McKenney, president of Swift Mfg. Co., Columbus, talked about "Men, and Their Jobs." Presiding at the meeting was A. Kempton Haynes, chairman of the section.

Movie for Promotion. Burlington Mills Corp. is promoting its Bur-Mil fabrics by means of a color sound movie entitled "Tomorrow Always Comes." There are ten versions of the film, one of which mentions no brand names other than Bur-Mil. The other nine versions include promotion of the following manufacturers and brand names: George E. & G. J. Hansen, Inc. (Mary Jane); Custom Undergarment Corp. (Corette); Manhattan Undergarment Co., Inc. (Newform); David Korn Co. (Fraypruf); A. N. Saab Co., Inc.; Seamprufe, Inc. (Seamprufe); Radelle Lingerie Corp. (Radelle); Cantor Greenspan Co. (Labtex); Miss Swank Lingerie, Inc. (Miss Swank).

WOOL THAT DOESN'T SHRINK—Dr. Donald H. Powers, director of textile research and development for Monsanto Chemical Co., models a chemically-treated all-wool flannel shirt which shrank only 1½% in five soap-and-water launderings. Samples cut from the same shirting material are displayed in the foreground. Originally they were the same size. In five launderings, the untreated sample at left shrank about 50%, while the treated swatch at right showed a loss of about 1½%. The textile chemical, Resloom, also helps the fabric to resist wrinkles and to retain creases. Dr. Powers believes that it transforms wool into "a new and superior fiber—more different from wool than rayon is from cotton."

Textile Men on National Patent Council. Election of seven smaller manufacturers to serve as governors of the National Patent Council, of Gary, Ind., and to lead a nationwide educational program in defense of the patent system was announced by John W. Anderson, Gary (Ind.) manufacturer of automotive equipment and president of the Council on Apr. 2. Among those elected were: Henry K. Norton, treasurer, Walter Kidde & Co., New York; E. A. Terrell, president, Terrell Machine Co., Charlotte, N. C.

Cluett-Peabody to Increase Its Textile Research. A modern research laboratory will be erected in Troy, N. Y., at a total cost of $600,000 by Cluett, Peabody & Co., Inc. The building will

For more efficient wet processing of Cotton, Wool, Rayon, Nylon—

Laurel

Soaps, Oils and Finishes

Whether the call is for cotton, wool, rayon, nylon, silk or mixtures, there's a Laurel Soap, Oil or Finish to meet your specifications and to assure more efficient wet processing, more profitable, speedier production.

Laurel Soaps, Oils and Finishes are keyed to the needs of the textile industry by continuous laboratory and mill research. For nearly forty years Laurel technicians have cooperated in the solution of processing problems in individual plants and in the development of special products, among them—

Nylon Hosiery Processing Agents—Save precious processing time, help you maintain smooth production flow, enable you to build up adequate stocks for your share of the tremendous demand back of "eleven pairs for every American woman." Tested and successfully used pre-war by well-known mills and dyehouses.

Laurel Coning Oil #443—An excellent conditioner which makes for better knitting. Applied on coner in usual way. Clean to handle. Will not oxidize on standing. May be removed in regular scour without use of special agents.

Laurel Nynit C—An effective lubricator which prevents sleazy yarn, sticking in pre-boarding operation. Reduces size accumulation on needles and sinker heads, as well as uneven drying, selvage roll. Effects perfectly even stitch-formation. Leg leaves machine in flat piece.

Laurel Supergel—A thorough scour. Quickly removes size, grease and dirt. Leaves hosiery clean, ready for dyebath.

Laurezol #6—Dissolves acetate colors.

Laurel Peramel—A lasting finish which adds to the beauty and appeal of your hosiery.

Laurel Hosiery Finishes—For natural and synthetic fibers and mixtures. A full line of softeners for producing the desired finish and full hand . . . snag resistance. Also spotproofing, water repellent (medium, high) and waterproofing finishes.

Laurel Emulsions—Hydrocop and 3B Softener—condition and soften cotton yarns, mercerized, dyed or bleached. Assure proper regain, speed up twist. Produce even-running yarns, clearer stitch. Do not turn rancid or discolor yarn on standing. Easily applied over roller trough or cone winders.

Soaps—For Fulling, Scouring, Degumming, Soaking. Prepared powder, flakes, bars, solid barrels.

Oils—Softeners, penetrators and developers for all fibers. Rayon Soaking and Coning Oils, Silk Oils, Wool Oils, Knitting Oils, Fulling and Scouring Oils, Sulphonated Oils, all types.

Finishes for waterproofing, mildewproofing, flameproofing, developing shades, improving hand and scroop effect for yarns, hosiery, piece goods, upholstery fabrics made from all type fibers.

Mildewproofing Compounds to prevent mold formation on rayon yarns and hosiery pending boarding operation.

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Laurel technicians will be glad to make recommendations for your particular processing problem. Write today.

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BOOTH QUALITY Card Clothing

Has a firm foundation of fabric or leather, yet is flexible, which reduces the possibility of shelling out. All clothing is available with rehardened points if desired.

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house a complete research and development laboratory, under the direction of E. C. Pfeffer, Jr., company research manager. Research projects will include study of non-woven fabrics, non-shrinking thread and electrostatic control of textile fibers.

Nylon and Rayon Plants for Australia. A $3,250,000 nylon and rayon mill, slated for erection in the State of Victoria, will be launched with the technical assistance of Canadian interests, states a dispatch from Melbourne, Australia, to McGraw-Hill World News. Part of the capital also will come from Canadian sources, although control will be in the hands of Australians and the Australian public will be offered at least 50% of the shares.

Coopers, Inc., Offers Scholarships at N. C. State. Two scholarships, valued at $2,000 each, will be awarded this spring in the School of Textiles at N. C. State College, Raleigh, N. C., Inc., by Coopers, Inc., of Kenosha, Wis. Dean Malcolm E. Campbell, head of the school, announced that two additional awards will be made next year to increase the number of Coopers scholarships to four.

Offers Plastic Film for Shoes, Upholstery, etc. The Pantasote Co., of Passaic N. J. has announced the development of a new unsupported vinyl-plastic film known as Pantex which has been successfully embossed in a variety of rich, natural grainings. It was primarily developed for use in women's shoes, handbags, belts, and trim for fashion accessories. However, use is being extended to upholstery, decorative wall covering, brief cases, desk sets, desk accessories, book bindings, wallets, change purses and similar items.

Phi Psi Chapter Marks Birthday. Alpha Chapter of the Phi Psi Fraternity celebrated its 43rd birthday on Mar. 21, in its annual Founders' Day Banquet at Philadelphia. Harold C. Wood, president, and Harold H. Hart, executive secretary of the Phi Psi Grand Council spoke briefly on Phi Psi. Theodore B. Hayward, manager, Philadelphia wool department, Swift & Co., also spoke. Tad Shepperd of Shepperd Mills was toastmaster.

Textile Calendar

American Association of Textile Chemists & Colorists, Rhode Island Section, April 26.

National Association of Hosiery Manufacturers, annual meeting, Hotel Claridge, Atlantic City, N. J., April 29 and 30.

Cotton Manufacturers Association of Georgia, annual convention, General Oglethorpe Hotel, Savannah, Ga., May 2 and 3.

American Association of Textile Chemists & Colorists, New York Section, New York, May 3.

American Association of Textile Chemists & Colorists, Midwest Section, Milwaukee, Wis., May 4.

American Cotton Manufacturers Association, annual meeting, Pinehurst, N. C., May 14 to 16.

Tufted Textile Manufacturers Association, Lookout Mountain Hotel, Chattanooga, Tenn., May 31 to June 1.

SARAN HANDBAGS—Garay & Co., of New York, has introduced Saran fabric bags. Informative label carries the characteristics of this new fabric to consumers for the first time. Outstanding features are, freshness of fabric, durability, rich color, and water resistance. Fabric can be cleaned by wiping with a damp cloth.

Improvements are born here

Many textile manufacturers have been able to improve their product or process with the help of our textile laboratory at Greenville, S. C. Our experienced technicians are always happy to be of service on textile problems.

CORN PRODUCTS SALES COMPANY

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BE WISE

ECONOMIZE

DESIZE WITH EXSIZE

WHATEVER your own particular finishing problem, scientific tests will show that EXSIZE... our natural enzyme desizer will do the best and most economical job for you.

So why not use our laboratories for your tests or let a Pabst Technical Man work with you in your own mill? You'll soon prove to your own satisfaction the many advantages of employing this safe, easy to use desizing agent. Containing no harsh chemicals, EXSIZE leaves materials supple, elastic, soft... turns out clean, absorbent fabrics. And hundreds of yards of cotton or cotton-mixed cloth can be desized with EXSIZE for only a few pennies.

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PABST BREWERIES

Copr. 1946, Pabst Brewing Company, Milwaukee, Wisconsin.

PABST SALES COMPANY
CHICAGO, ILLINOIS
Warehouses at Jersey City, and Textile Warehouse Company, Greenville, S. C.

NEWS ABOUT *Suppliers*

Scott & Williams, Inc., New York, have appointed Mrs. Irene Sheppard Sykes as the company's director of retail promotion, a newly created post. Mrs. Sykes, who has a background of experience in sales promotion, merchandising, and educational work, will promote the Scott & Williams new no-seam nylon stockings, with patented heel and toe features, to retail store personnel and other interested groups in the field, under the identifying "Seal of the Dancing Twins".

Klauder Weldon Giles Machine Co., Philadelphia, has been formed by merger of the Giles Dyeing Machinery Co., and the Klauder Weldon dyeing machine business recently purchased from H. W. Butterworth & Sons Co. by Wm. E. H. Bell, former manager of the dyeing machine division of Butterworth. Plant will be at Adams Ave. and Leiper St., Philadelphia 24, Pa. The personnel will include Mr. Bell and all those previously associated with the Giles Dyeing Machinery Co.

Armstrong Cork Co., Lancaster, Pa., has assigned Joe F. Cline, formerly overseer of spinning at the Wateree and Oakland plants of the Kendall Co., to Armstrong's Greenville, S. C., office where he will serve as a salesman in the textile department of the company's industrial division. With headquarters in Greenville, he will contact textile mills in sections of South Carolina and Western North Carolina.

Onyx Oil & Chemical Co., Jersey City, N. J., has added to its staff Emil W. Peters as hosiery technician. Mr. Peters graduated in 1936 from the Philadelphia Textile Institute. He spent five years as a dyer in the hosiery trade and for the last five years was associated with the research and development division of Philadelphia Quartermaster Depot.

Foster Machine Co., Westfield, Mass., has elected W. C. Chisholm as president and treasurer, succeeding Henry S. Washburn, who was made chairman of the board. Mr. Chisholm has

NATIONAL OIL PRODUCTS CO., Harrison, N. J., holds bi-monthly meetings of district and division managers of its Industrial Sales Department. Group above convened at its first four-day session designed to keep field representatives aware of current sales trends. Pictured at the meeting, left to right, are: Seated, Miss Mary F. O'Connell, advertising manager; Thomas A Printon, vice president in charge of the Industrial Department; George H. Small, Southern district sales manager. Standing: Dr. Edwin A. Robinson, technical director and manager of Textile Rayon Division; Harry G. Meegan, manager of Textile Specialties Division; Robert F. McClellan, Chicago district sales manager; B. A. Schiller, manager of Tanning Oils Division; John N. Gamman, Midwest district sales manager; Walter B. Morehouse, manager of Paper Chemicals Division; Otto E. Lohrke, manager of Metsap Chemical Division, and H. J. 'Bud' Waldron, New England district sales manager. George G. Stier, manager of Specialties Sales Division, and Harry A. Batley, manager of the Coordinating Division, are not in this picture.

For speed control at its best

Look to...

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Variable SPEED CONTROL

TRANSMISSIONS • MOTOR PULLEYS

★ The adaptation of modern, highly-efficient control of your production machines requires the work of specialists. The experience of this organization—pioneers in speed control—is available to you for the solution of your speed-control problems.

Lewellen Variable-Speed Transmissions, Variable-Speed Motor Pulleys and Automatic Controls serve industry the country over. Lewellen engineers are constantly finding new ways to adapt variable-speed control to fixed-speed machines and to improve inefficient speed-control methods.

We invite you to use this specialized service. Tell us your problem! Look to Lewellen!

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COLUMBUS, INDIANA

You can do jobs like this BETTER *and* FASTER with Infra-Red

Photo courtesy Fostoria Pressed Steel Corporation

In the Sanforizing process for preshrinking cloth, Infra-Red speeds up production by 30% to 40%!

In many other textile applications, where drying, preheating, or evaporation is involved, Infra-Red offers equally outstanding advantages. Infra-Red boosts output, reduces costs, or cuts down rejects in such uses as: drying rayons and cellulose acetate; drying printed fabrics; removing salt solution from duck.

FOR BEST RESULTS WITH INFRA-RED

come to the company that's first in the field! Wabash developed the special tungsten filament that provides *uniform* distribution of radiant energy—at the best wave lengths for the purpose. Wabash locks every lamp with the "Superlok" base that even terrific temperatures cannot loosen.

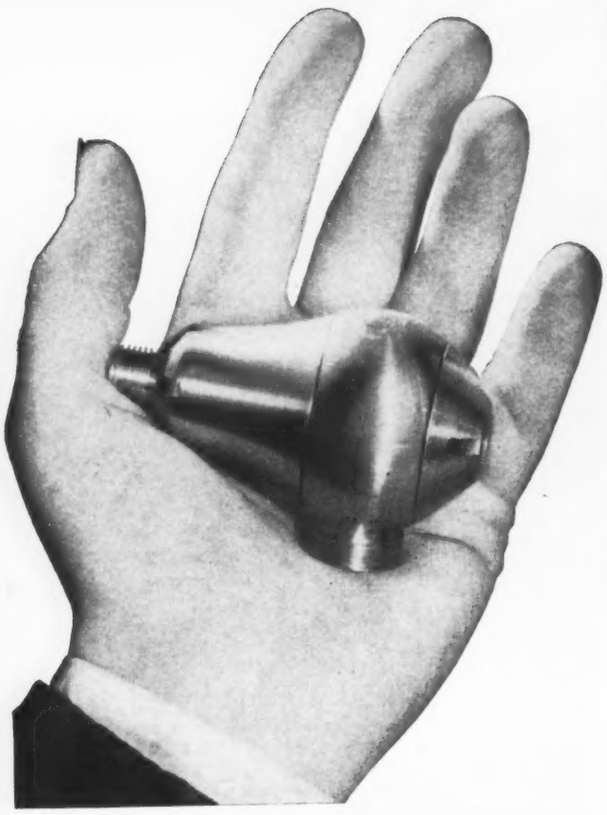
And Wabash is ready to help you engineer each application, to meet the requirements of your job—to give you the *best* of the proved advantages of Infra-Red.

Find out more about what Infra-Red can do for you... just drop a line to

WABASH CORPORATION
345 Carroll Street, Brooklyn 31, N. Y.
A Subsidiary of Sylvania Electric Products Inc.

WABASH-BIRDSEYE

FIRST IN INFRA-RED



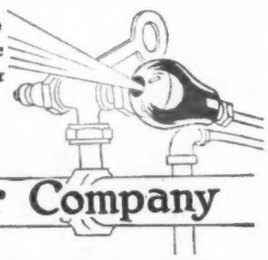
Humidifiers or Humidification

Where desperate need for moisture exists, anything labeled "humidifier" can hardly fail to help. Thus "humidifiers" sometimes get more credit than they deserve.

Mysterious looking objects delivering moisture and humidification have little in common. Humidification reckons with many things; the changing demand of the seasons, of each day, or hour, or minute. It includes peculiarities of plant, processes and product. Finally, it aims at more and better production.

Yes, "humidifiers" may help. Genuine humidification produces astounding results.

No piping changes. The self-cleaning Turbomatic interchangeable with earlier and other models.



Parks-Cramer Company

Fitchburg, Mass. Boston, Mass. Charlotte, N. C.

been serving as executive vice president and treasurer. Other changes include the election of A. B. Root and E. C. Connor to the board. Mr. Root is vice president and general manager. Mr. Connor, sales manager, succeeds his father on the board. T. E. Connor is retiring after 52 years with the company.

Kaumagraph Co., Wilmington, Del., has appointed Sherrill W. Porges as sales manager with headquarters in the Empire State Bldg., New York. Mr. Porges has had a 17-year experience with the company.

A. B. Carter, Inc., Gastonia, N. C.—The Western division of the Textile Society of Canada met at Hamilton, Ontario, recently with the Hamilton Cotton Co. acting as host. The speaker of the evening was J. McDowell McLeod, of Columbia, S. C., engineer for the Carter Traveler Co., who discussed the selection of ring travelers for specific applications, and their relationship to various processes of textile engineering. Mr. McLeod was introduced by Hugh Williams of Toronto, Canada, direct representative for A. B. Carter, Inc.

Sinclair Refining Co., New York, N. Y., has appointed Paul W. Zumbrook as manager of domestic lubricating oil sales with office in New York. In his new assignment, Mr. Zumbrook will coordinate the service and distribution activity of the Sinclair automotive and industrial lubrication staffs. He joined Sinclair at the time of the establishment of the Chicago office in 1916. He became lubricating sales manager for the central district with headquarters in Chicago in 1936.

Rumford Chemical Works, Rumford, R. I., has promoted Arthur H. Razee, a member of the technical service department since 1940, to manager of chemical service and sales. Irving G. Loxley has been promoted to the position of assistant manager of chemical sales. Frank Cutter is now sales statistician, and Joseph C. Harvey, Jr., recently discharged from the Navy, has been appointed to the sales department. The company has added to its research laboratory staff John R. Van Wazer, Ph. D., formerly in charge of a physical chemistry laboratory in the Tennessee Eastman Corp. division of the Clinton Engineering Works at Oak Ridge, Tenn., and Robert H. Elliott, M. D., an inorganic chemist for seven years at the Laurel Hill, L. I., research laboratory of General Chemical Co.

J. HUGH BOLTON, who has been elected president of Whitin Machine Works, Whitinsville, Mass., as reported last month. He succeeds E. Kent Swift who has been the directing head of the company since 1913 and with Whitin since 1900. Mr. Swift continues as treasurer, and, as chairman of the board, will continue as the head executive officer. Mr. Bolton has been with Whitin since 1925. He was appointed a vice president in 1938 and first vice president in 1942.

Arnold, Hoffman & Co., Inc., Providence, R. I., has added Harry Green to its Southern sales force. He lately left the Army with rank of lieutenant colonel. He is a graduate of Clemson College, and prior to his entry into the Army in 1941, he was chemist for the five mills of Maine Industries. He will cover the Georgia territory, with headquarters in Columbus, Ga.

L. Sonneborn Sons, Inc., New York, N. Y., have added Dr. Henry Sonneborn, III, and Dr. Hans Schindler to the technical staff of the Petrolia, Pa., refinery of the company.

Truscon Laboratories, Inc., an affiliate of Devoe & Raynolds Co., Inc., has appointed Phil Fogarty as New York representative with office at 787 First Ave., New York.

Westvaco Chlorine Products Corp., New York, has grouped all sales department technical affairs into the technical sales division, and appointed William T Nichols, technical sales director to coordinate and expand technical sales activities.

E. H. Jacobs Mfg. Co., Danielson, Conn.—Edward Jacobs Bullard, for 16 years treasurer of this

THE WETTER YOUR PLANT EQUIPMENT AND WALLS THE MORE YOU NEED

DAMP-TEX ENAMEL

Proved Fungus Resistant by FUNGUS TEST

PRESERVES AND BEAUTIFIES DINGY WET WALLS AND EQUIPMENT

Dark, dingy walls cut down efficiency Rusty, neglected equipment increases depreciation costs. Rot, bacteria and fungus play havoc generally. The Damp-Tex system was created for the plant where the presence of moisture, heat and other unusual conditions hinders proper surface maintenance. Over 4,000 plants have discovered its superiorities. Write for our trial offer.

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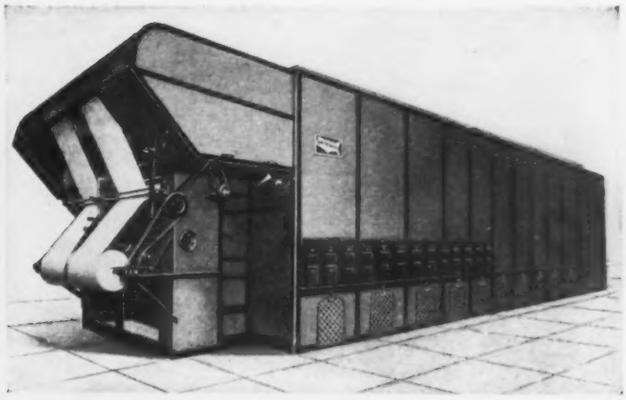
STEELCOTE MFG. CO. • ST. LOUIS, MO.

Canadian Manufacturer—Standard Paint & Varnish Co., Windsor, Canada



"NATIONAL" *High-Speed* Automatic Piece Goods Dryer

A Better Dryer Because of the Following Features:

New high-velocity, adjustable-pitch, direct-drive propellers that perform efficiently at higher static pressures . . . Improved core-flanged rotating and expanding conveyor poles that eliminate all circulatory strain on the wood . . . New high-velocity air diffusion control system that provides wider flexibility in application of the drying medium . . . Extra doors and additional streamlining of the interior to permit easier access and cleaning.

There are others . . . to further assure faster, more uniform drying and curing at important savings in operation and maintenance. Ask our representative for *all* the details.

* * *

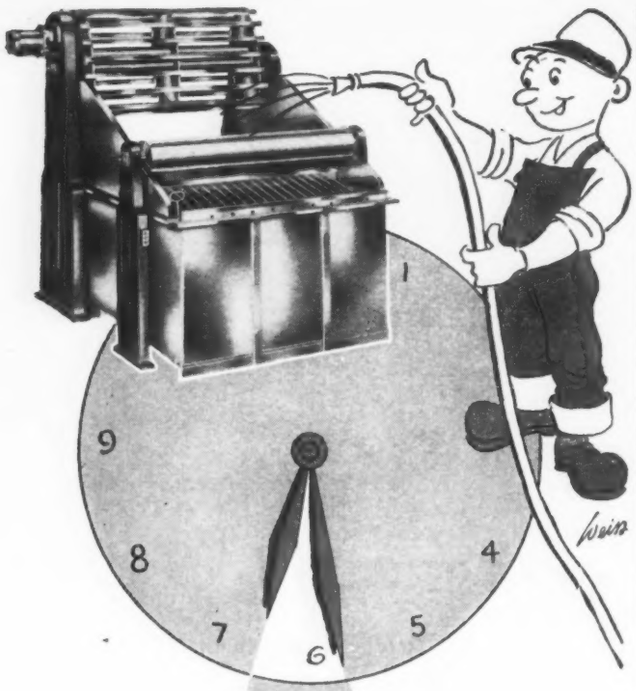
THE "NATIONAL" LINE: Automatic Piece Goods Dryers. Straight Run and Return Type Tenter Drying Systems. Yarn Dryers and Conditioners. Truck Type Skein Dryers. Apron Type Stock Dryers and Carbonizing Equipment. Print Goods Dryers. Truck, Tray and Conveyor Type Test Dryers for Textiles, Chemicals, Food Products, etc.

NATIONAL

THE NATIONAL DRYING MACHINERY CO.

WEST LEHIGH AVE. & HANCOCK ST., PHILADELPHIA 33, PA.

New England Agent: C. H. INGALLS—Providence, R. I.



2-minute changeovers for busy dyehouses

No Stripping
No Boil Outs
No Discoloration
No Loss in Steam or Water

The Blickman Stainless Steel dyebox gives you more runs per day at lower cost. A quick rinse and the box is clean. In man-hour savings alone, many operators report that the equipment pays for itself in a short time. Send for all the facts.

Send for folder "3 for 5"—showing Blickman Stainless Steel Dyeing Equipment.

S. BLICKMAN, INC.
404 GREGORY AVENUE • WEEHAWKEN, N. J.
Manufacturers of stainless steel textile equipment, dye boxes, linings, cylinders, dry cans, rolls, hoods, tanks

company, has returned after four years in the AAF as B-26 pilot and bombardment group executive officer with rank of lieutenant colonel. He will devote his time to the development of new rubber and "Plyweld" products for textile mills.

Hart Products Corp., New York, has appointed Dr. Boris Schwartz as chief research chemist.

Dexter Chemical Corp., New York, has appointed Morris Mytelka as chemist in charge of production for its textile chemical division. He has been associated with the laboratories of the Bakelite Corp. and the Battery Mfg. Corp., and for the last ten years has been analytical and research chemist for Hart Products Corp.

Sylvania Industrial Corp., New York, has added James J. Casserly to its "Ceglin" Textile Finishes Division as a member of technical sales staff. During the war he was a captain in Chemical Warfare Service, having entered the service upon graduation from Clemson College.

New Departure Division, General Motors Corp., Bristol, Conn., has appointed James Y. Pharr, Jr., as Southern representative for its ball bearings, with headquarters in Charlotte, S. C. He is a graduate of North Carolina State College, and has worked in the Cannon Mills and Saco-Lowell Shops. After release from the Army, he underwent an intensive training course in ball-bearing engineering.

Stein, Hall & Co., Inc., New York, have elected Oliver H. Clapp and Robert M. Stein as directors. Mr. Clapp is vice-president in charge of the sales division, while Mr. Stein, also a vice-president, is associated with the foreign division. J. Rex Adams has been named acting manager of the technical division succeeding Dr. Alexander Frieden, resigned. The Chicago branch of Stein, Hall & Co. has been opened at 23 East Jackson Blvd. George A. Krisan is Chicago branch manager.

American Viscose Corp. has opened a sales office at Cleveland, Ohio, to service the textile and tire manufacturing trades in the Midwestern area. William J. Bieberle, previously associated with the company's Philadelphia sales office, is manager, and Harry A. Mason, formerly in the viscose yarn division of the New York office, is assistant manager. Address is 1318 Guardian Building, 629 Euclid Ave., Cleveland 14, Ohio.

CHESTER S. ALLEN, who has been elected president of Lockwood Greene Engineers, Inc., New York, succeeding the late Albert L. Scott. Mr. Allen has been with Lockwood Greene since 1910.

The Dayton Rubber Mfg. Co., Dayton, Ohio, reports that W. L. Morgan has resumed his sales duties in the textile division's South Carolina territory. He held that position before serving with the armed forces since 1943.

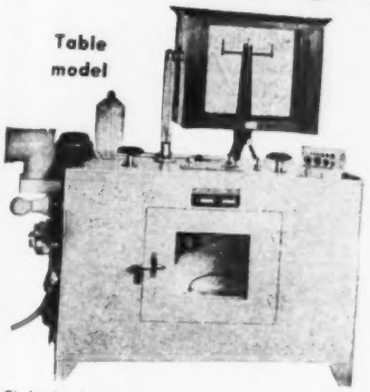
Columbia Chemical Division of Pittsburgh Plate Glass Co., Pittsburgh, Pa., has appointed William F. Newton as manager of market research and development. He joined the Columbia Division's research staff during July, 1941. He was made division superintendent in charge of synthetic resins and related organic products in 1943.

The B. F. Goodrich Co., Akron, Ohio, has appointed Leonard M. Freeman as manager of its newly-established works laboratories which handle

BERNARD BUONANNO, who has been appointed general manager of Atlantic Chemical Co., producers of Atco textile chemicals.

Textile Testing Ovens

Table model



Eight-Basket Oven—Can be equipped with 8 Baskets—3" x 3" square, and 6" deep; or with 6 Baskets, 4¼" x 4¼" and 6" deep. Sets on tabel in space of 20" x 40."

Check Yarn Samples for Moisture

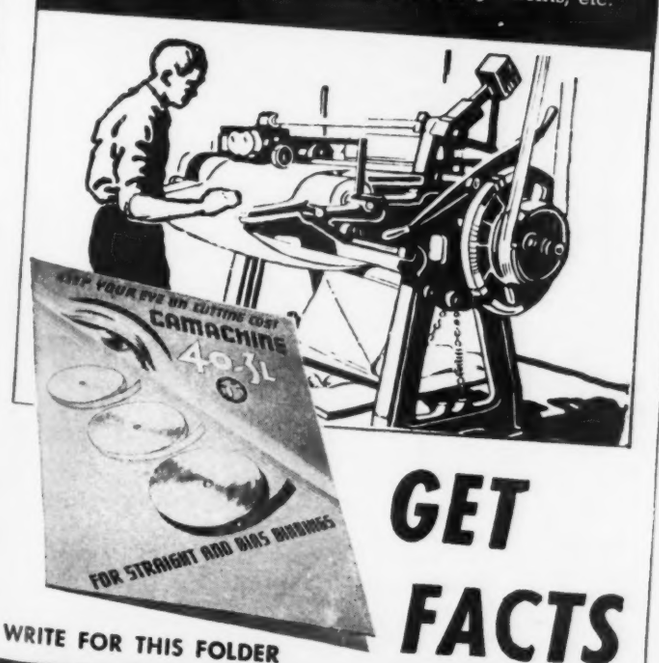
Test all your yarn, stock in process, and finished goods—for moisture content—with accuracy. Weighing can be made without opening the oven door.

EMERSON Ovens

Are built in different types to handle wool, cotton and silk. Equipped with baskets to fit the work. Write for details on EMERSON OVENS to fit your process.

EMERSON APPARATUS CO.
177 Tremont St., Melrose 76, Mass.

CAMACHINE 40-3L is designed especially for the purpose of producing straight or bias bindings as used by manufacturers of underwear, corsets, garments, etc.



GET FACTS

WRITE FOR THIS FOLDER

CAMERON MACHINE COMPANY
61 POPLAR STREET, BROOKLYN 2, N. Y.
MIDWEST OFFICE: 111 W. MONROE ST., CHICAGO 3, ILL.

Mr. SUPERINTENDENT

Are you interested in improving your—

1. SPINDLE LUBRICATION?
2. COMB BOX LUBRICATION?
3. LOOM LUBRICATION?
4. TWISTER RING LUBRICATION?
5. BALL BEARING LUBRICATION?

If so—

Please mail the coupon below.

Many of the largest textile organizations in the South have increased production and reduced costs by using Pure Oil Company Engineering Service and Lubricants.

To:

Industrial Dept. of

Woofford Oil Co.,—P. O. Box 4147—Atlanta 2, Ga.
The Pure Oil Co.,—P. O. Box 156—Birmingham, Ala.
The Pure Oil Co.,—P. O. Box 2607—Charlotte, N. C.

I would like to discuss one or more of the above types of lubrication with your engineer in this area. I understand there is no obligation whatsoever on my part in accepting this service.

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(SUPERINTENDENT)

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(MILL)

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(ADDRESS)

COMMONWEALTH
COLOR & CHEMICAL CO.

More than thirty years' experience in the manufacture of Chemical Specialties, Dyestuffs and Dyewoods for the Textile and Allied Trades

MAIN OFFICE AND WORKS:
KEVINS, BUTLER AND BALTIC STS., BROOKLYN 17, N.Y.
PHILADELPHIA — CHICAGO
GLOVERSVILLE — MONTREAL

technical service, development, and training of technical personnel.

Lindsay, Oberholzer & Co., Philadelphia, has been formed to distribute industrial equipment by M. R. Oberholzer, general sales manager of L. H. Gilmer Co., Tacony, Philadelphia, and E. C. Lindsay, Gilmer district manager. The principal line carried is Gilmer V-belts and flat belting. Office and warehouse is at 4432 Ridge Ave., Philadelphia. Mr. Oberholzer's duties at the Gilmer Co. are being carried on by W. H. Lehr.

Pittsburgh Plate Glass Co., Pittsburgh, Pa., has appointed Walter K. Farst as general manager of the cement plant located at Zanesville, Ohio, succeeding the late Arthur R. Haley. Mr. Farst has been associated with the glass company's Columbia Chemical Division for 23 years.

Wheelco Instruments Co., Chicago, has added Francis H. Beaupre and Bruno H. Ramthun to its application engineering department.

The Railway Supply & Mfg Co., Cincinnati, Ohio, has formed a new Synthetic Waste Division, headed by Laurence C. Holt. A graduate of Lowell Textile Institute, he has had experience in cotton and synthetics.

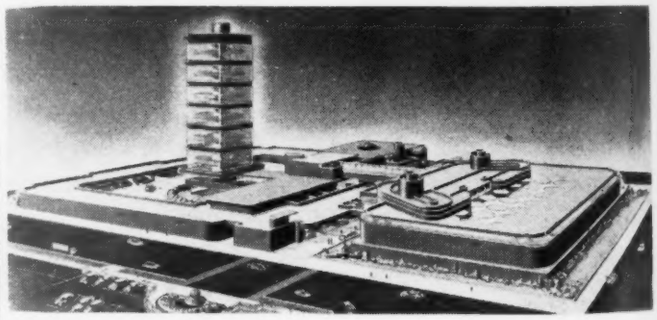
Powers Regulator Co.—J. B. Rogers, a recent graduate in mechanical engineering from Clemson College, and R. A. Harbort, mechanical engineer from Georgia Tech, with four years service in the Navy, have joined the sales-engineering force of Powers Regulator Co.'s Atlanta office, under direction of Edwin R. Foss.

Westinghouse Electric Corp., Pittsburgh, Pa., is integrating the facilities of the Westinghouse Air Conditioning Division with the manufacturing and engineering facilities of the B. F. Sturtevant Co., Hyde Park, Mass., purchased by Westinghouse in September, 1945. Ellis L. Spray, Westinghouse vice president in charge of the Elevator and Air Conditioning Divisions of the corporation at Jersey City, has been elected executive vice president of the new organization, which is known as the B. F. Sturtevant Co. Division of Westinghouse Electric. G. C. Derry, formerly vice president of Sturtevant, has been elected vice president and general manager, and is responsible for the over-all operation of the business of this subsidiary, and E. B. Williams, formerly vice president of Sturtevant, continues in that office. In addition to air conditioning, the new subsidiary will carry on Sturtevant business in general industrial air-handling equipment.

Kearny Mfg. Co., Kearny, N. J., has appointed Charles C. Withington, of Greenville, S. C., (Telephone 1307) as representative for South Carolina.

Brown Instrument Co. division of Minneapolis-Honeywell Regulator Co. has opened a sales and service office at 16 State St., Rochester, N. Y., under the supervision of Gerald L. Britton. O. J. Richardson has been appointed industrial manager of Brown Instrument at Detroit, Mich. George W. Brown has been appointed industrial manager of the Cincinnati office.

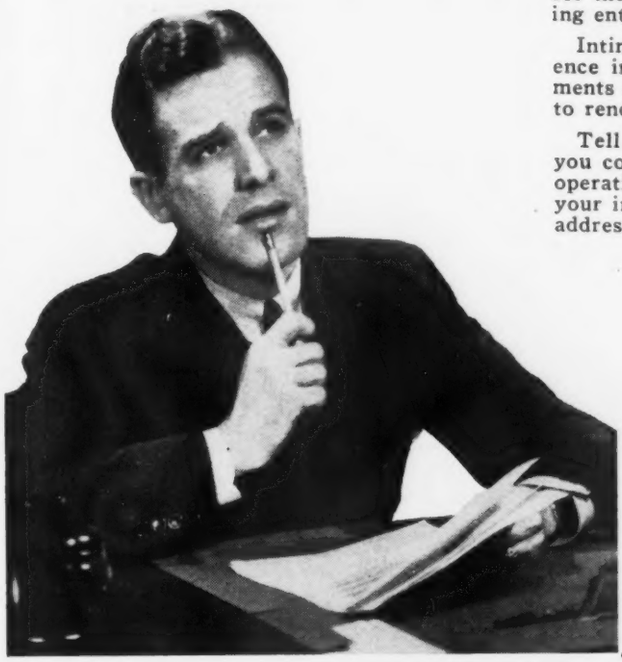
Calco Chemical Div., American Cyanamid Co., Bound Brook, N. J., has established the offices of the Metropolitan District Sales Division, Dyestuff Department, at 30 Rockefeller Plaza, New York. Paul J. Luck will be in charge of all sales activities of the department.



S. C. JOHNSON & SON, INC., Racine, Wis. is about to build the above modern wax research laboratory featured by a 15-story glass tower, designed by the famous architect Frank Lloyd Wright. The new building, which will mark the 60th anniversary of the founding of the business, will be a companion to the Johnson Administration Building which was also designed by Wright and completed in 1939.

PUZZLED . . .

About Where to build your new plant?



Then let us help you. Along our lines there are numerous locations which possess the combination of factors essential for the successful operation of manufacturing and distributing enterprises.

Intimate knowledge of local conditions, plus long experience in assisting industries to locate where their requirements can best be met, enables our staff of trained specialists to render you invaluable aid.

Tell us what your needs are, and we will gladly furnish you comprehensive information about sites suited for your operations. All negotiations are conducted in confidence, and your inquiry will entail no obligation on your part. Simply address:

Dallas T. Daily, General Industrial Agent
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SEABOARD
AIR LINE RAILWAY
THROUGH THE HEART OF THE SOUTH

DAVIS AND FURBER

Earn a Manufacturing Profit By Using the Best Machinery and Supplies

DUSTERS
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WOOLEN SPINNING FRAMES
SPOOLERS
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CARD CLOTHING
NAPPER CLOTHING
GARNETT WIRE
LEATHER RUB APRONS
LEATHER CONDENSER TAPES

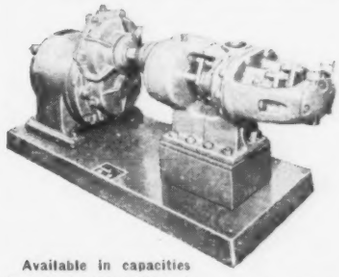
DAVIS & FURBER
NORTH ANDOVER, MASS.

THE ACCEPTED STANDARD

BUMP PUMPS

WILL DO YOUR PUMPING JOB Better

here's why



Available in capacities from ½ to 400 GPM and in different models and metals suitable to the job. Illustrated here is the industrial direct drive model.

Bump Industrial Pumps will handle light or viscous liquids with positive displacement at any speed or pressure. They are self-priming under high vacuums or against head pressures, and can be operated at slow speeds without agitation, churning, or vibration within the pump. Bump Industrial Pumps deliver a constant volume per revolution regardless of speed or pressure, and because of their special design, operate at the lowest maintenance cost. As one company that has used a large number of Bump Pumps for years states, "They do a better job at a lower total cost to us than any other pump now offered on the market." Note principle of operation above and you'll see why the low maintenance cost.

The BUMP PUMP CO. LA CROSSE WISCONSIN

WHITMAN YARNS

WORSTED · COTTON · SPUN RAYON

WHITMAN SERVICE
1852-1946

During 94 years The William Whitman Company, Inc., and its predecessors have served the interests of important mills and users of yarns, seeking to establish for its customers a steady flow of dependable, quality yarns.

ARLINGTON MILLS
LAWRENCE, MASS.

Bradford Spun Worsted Yarns, Natural and Slub-dyed Colors and Mixes.

MONOMAC SPINNING CO.
LAWRENCE, MASS.

French-spun Worsted and Merino Yarns. Specialty Yarns—Rabbits Hair, Rayon, Acetate and Other Blend Yarns.

NONQUITT MILLS
NEW BEDFORD, MASS.

Cotton and Spun Rayon Yarns, Merino Blends, Specialty Rayon and Wool Mixtures.

WILLIAM WHITMAN COMPANY, INC.
SELLING AGENTS

BOSTON, 78 Chauncy St. — NEW YORK, 261 Fifth Ave.
PHILADELPHIA, 1600 Arch St. — CHARLOTTE, Commercial Bank Bldg.

NEWS ABOUT Mills

COTTON MILL NEWS

Alpine Cotton Mills, Morgantown, N. C., has been sold to George W. Stowe, of Belmont, N. C., for approximately $450,000. Plant operates 10,440 spindles on 8s to 16s cotton yarns.

Balston Yarn Mills, Inc., Lincolnton, N. C., has been sold to Nathan Scheinmann of New York.

Bartex Spinning Co., Clayton N. C., has been bought by Norwich Knitting Co., Norwich, N. Y., which will take over at once and continue production of yarns. A. C. Atkinson will be superintendent.

Beaumont Mfg. Co., Spartanburg, S. C., will have one of the most modern weave rooms in the South, when the installation of 300 new looms is finished. Two hundred of the looms will be 44-in. X2 models, and the rest will be 40-in. XP models.

Birmingham Cotton Mills, Birmingham, Ala., has been sold to Palmer Mills, Inc., Birmingham, a newly organized corporation whose owners are reported to be interested in Palmer Bros. Co., Fitchville, Conn.

Brookside Mills, Knoxville, Tenn., has been sold to interests not yet named. Tabin, Picker & Co., Chicago dress manufacturer, is reported to have participated in the purchase. This transaction and expansion contemplated by the new owners will involve about $3,000,000. The mill, which now has 52,120 spindles and 998 looms, will ultimately employ 3,000 to 3,500 workers. Arthur L. Emery will remain as vice-president and general manager.

Clover Spinning Mills, Inc., Clover, S. C., has been sold to David Getz, Allentown, Pa., who acted as agent for Eastern interests.

D. E. Converse Co., Glendale, S. C., has been sold for approximately $2,500,000 to J. L. Stifel & Sons, Inc., of Wheeling, W. Va. Converse equipment includes 33,804 spindles and 964 looms on print cloths, sheetings, and drills.

Entwistle Mfg. Co., Rockingham, Ala., has been sold to M. Lowenstein & Sons, New York, who will continue operation with the old Entwistle organization. The sale involves mill No. 1, with 53,760 spindles and 1,300 looms, and mill No. 3, with 8,636 spindles and 275 looms. Mill No. 2 was sold in 1943.

Firestone Cotton Mills sold its Fort Worth, Tex., plant to Akos Horvath, president of Dallas Cotton Mills, Dallas, Tex.

Green River Mills, Inc., Tuxedo, N. C., will erect an addition to provide room for installation of more machinery.

Haarty Auto Fabric Co., Watertown, Mass., has commissioned Ganteaume & McMullen, Boston engineers, to prepare plans for a mill and warehouse.

Indiana Cotton Mills, Cannelton, Ind., have been purchased by Bemis Brothers Bag Co., St. Louis, Mo.

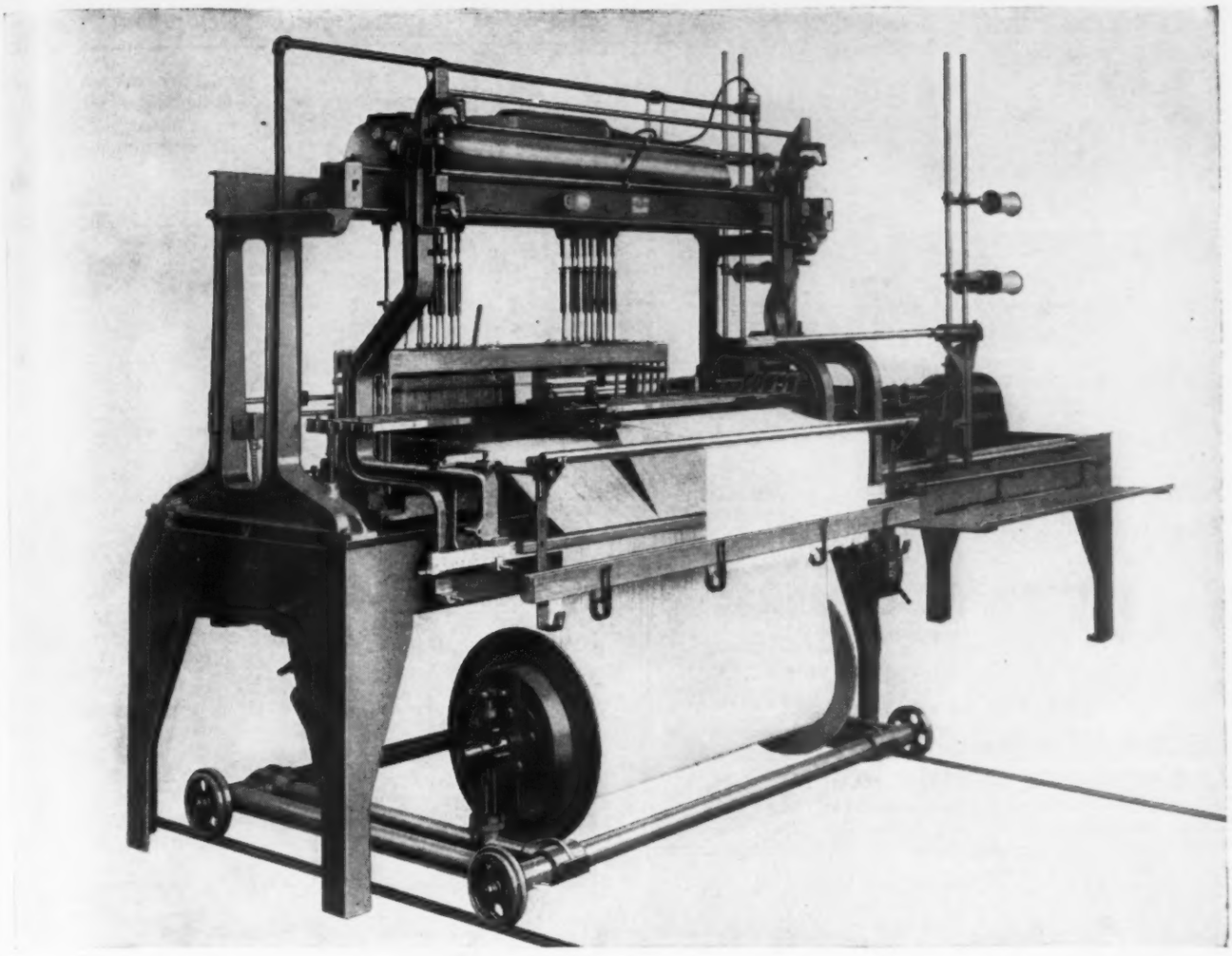
Maiden Spinning Mills, Inc., chartered Jan. 31, has purchased D. H. Mauney & Sons Mfg. Co., Maiden, N. C., for a reported price of $50,000 and other considerations.

Merrimack Mfg. Co., Boston Mass., has contracted, subject to approval of stockholders, to sell all remaining fixed assets of the company to Brookside Textiles, Inc., in which Jacob Ziskind, Fall River, Mass., is interested. The company's Huntsville, Ala., properties were sold some time ago to M. Lowenstein & Sons, Inc., New York.

Newberry Cotton Mills, Newberry, S. C., according to reports, has been or will be sold to M. Lowenstein & Sons, Inc.

Pacific Cotton Mills, Orange, Cal., is adding about 10,000 sq. ft. of floor space to its present plant, to bring the total up to 30,000 sq. ft.

Peck Mfg. Co., Warrenton, N. C.—Majority of outstanding



GREATER CAPACITY FOR DRAWING-IN WORK

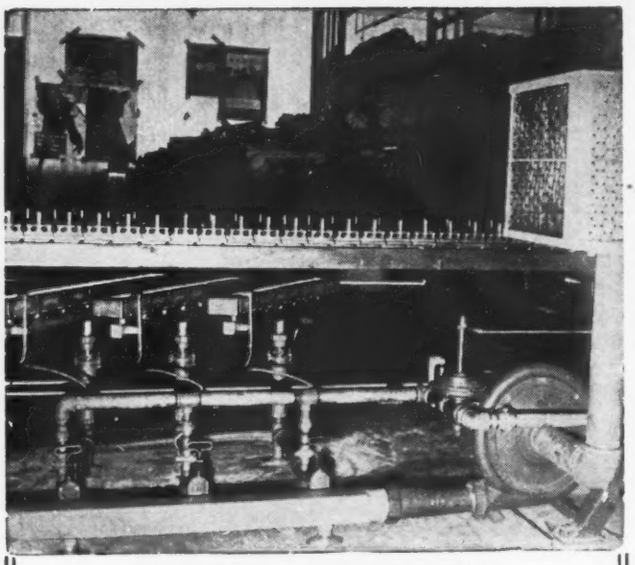
This new Barber-Colman Drawing-In Machine provides greater capacity to handle high sley warps and fancy patterns characteristic of modern goods. The machine is made in several sizes and capacities up to a maximum of 120" reed width to draw *up to 24 harnesses, 8 banks of drop wires, and reed.* It can be used on rayon, cotton, or wool — and therefore is applicable in all types of weaving mills. The machine is fast, and the correct heddle is automatically selected for each end according to a punched sheet-metal pattern strip. In rayon mills especially, where frequent harness-cleaning is a necessity, this machine will effect substantial savings in time and expense over the slower and costlier method of hand drawing-in. It can handle a wide variety of work, as it is designed to draw warps from a flat sheet, split sheet, double beam, or one and one lease. Flat steel heddles, designed to float freely the full length of the heddle bar, are used. For an estimate showing the savings to be made by use of this machine on the type of work now in your mill, see your Barber-Colman representative.

AUTOMATIC SPOOLERS • SUPER-SPEED WARPERS • WARP TYING MACHINES • DRAWING-IN MACHINES

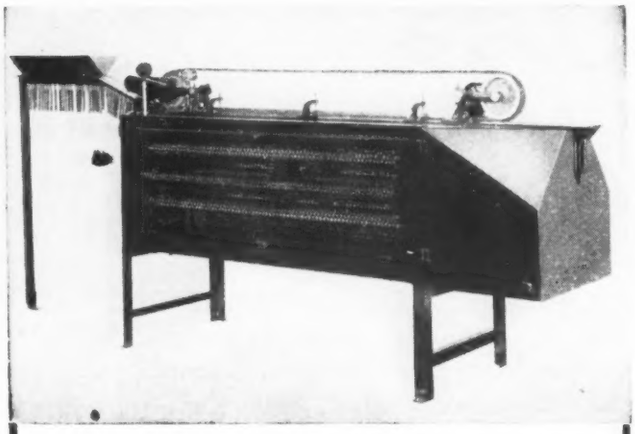
BARBER-COLMAN COMPANY

ROCKFORD • ILLINOIS • U. S. A.

FRAMINGHAM, MASS., U. S. A. GREENVILLE, S. C., U. S. A. MANCHESTER, ENGLAND



TYPICAL APPLICATION
OF
RED-RAY BURNERS
ON OPEN TENTER FRAME
HANDLING COTTON GOODS
WRITE FOR COMPLETE DETAILS
RED-RAY MANUFACTURING CO.
455 WEST 45TH STREET, NEW YORK, N. Y.
Canadian Representative:
Rudel Machinery Co., Ltd., 614 St. James St. West, Montreal



THE TYPE L
LOOM BOBBIN STRIPPER
for
RAYON YARNS
The **Terrell Machine Co.,** *Inc.*
CHARLOTTE, N. C.

James F. Notman, Needham, Mass. . . . . N. E. States
E. W. S. Jasper, Inc., Elizabeth, N. J., Penn., N. Y. and N. J.
W. J. Westaway Co., Ltd., Hamilton & Montreal . . Canada
Geo. Thomas & Co., Manchester, Eng. . . European Agent

NEWS ABOUT MILLS

stock has been sold to T. Ewing Montgomery, Philadelphia attorney, representing a group of Pennsylvania knitting manufacturers. About $450,000 was involved.

Profile Cotton Mills, Jacksonville, Ala., has work under way on a modernization and improvement program for increased operations. This property was recently acquired by new interests.

Rancho Cotton Mills, Salisbury, N. C., recently incorporated with capital stock of $200,000, will succeed the former Maple Mills, Salisbury. A new mill village will be built.

Textiles, Inc., Gastonia, N. C., has sold the two mills of Flint Mfg. Co., Gastonia, to Burlington Mills. The two mills produce combed yarn. In another deal, Textiles, Inc., traded its Priscilla Mill in East Gastonia to Aberfoyle Mfg. Co. for the latter company's three Hanover plants in South Gastonia.

Virginia Fiber Corp., Petersburg, Va., has begun limited production to test equipment. The plant will manufacture automobile seat covers.

Wool Mill News

Ace Woolen Co., Norwich, Conn., has established a branch plant in Manchester, Conn, with 15 sets of cards and a complement of mules and looms. Max H. Furman is the owner.

American Woolen Co. has added 18 B.W. Whitin frames to its spinning department at Globe Mills, Utica, N. Y.

Blackinton Woolen Mills, Inc., North Adams, Mass., has purchased the Conestee Mill property in Conestee, S. C. The sale includes mill buildings and two tracts of land, but not the village.

Bower Mill, Lewiston, Me., of Nashua Mfg. Co., which has been manufacturing wool blankets, was leased recently to Fred W. Lane, formerly with Hayward-Schuster Woolen Mills, Inc., East Douglas, Mass.

Damar Wool Combing Co., Providence, R. I., recently formed, plans operation of a plant. Jacob Goodman, Pawtucket, R. I., is principal incorporator.

Dartmouth Woolen Mills, Inc., Claremont, N. H., plan addition, reported to cost over $75,000 with equipment.

Drycor Felt Co., Inc., Belleville, N. J., has bought the New City Mill, Staffordville, Conn, and will establish a plant to manufacture felts used on paper-making machinery.

Easthampton Weaving Co., Inc., Easthampton, Mass., was formed recently to do commission weaving of wool, cotton, and fine rayon fabrics. The new mill has 120 automatic looms. Eugene Martin is president, treasurer, and manager.

Hadley Mills, Inc., Holyoke, Mass., was recently formed with Wallace Garber as president and treasurer, to manufacture all types of cloth.

Hendon Woolen Mills, Inc., West Warwick, R. I., has been formed to make woolen yarns. M. Max Prince is president, Hugo M. Prince is vice-president and treasurer, and Foster Ellingwood is manager.

Holyoke Fabrics, Inc., Holyoke, Mass., will shortly install $120,000 worth of new textile equipment. This will in some cases replace obsolete equipment and the remainder will constitute expansion.

Hutton Woolen Mills, Inc., Philadelphia, Pa., and **Kemlin Woolen & Worsted Mills,** Seneca, S. C., have been acquired by A. E. Bernstein and others, who will take over at once. Mr. Bernstein will be president of the former company and vice-president of the latter.

Peerless Woolen Mill, Rossville, Ga., has asked bids for installation of an air-conditioning system in its card room, and will award contract soon.

St. Jean Combing Co., Inc., Burrillville, R. I., recently organized, plans operation of a local mill. Albert St. Jean, Burrillville, heads the company.

Shawmut Woolen Mills, Stoughton, Mass., recently purchased the former Whitman & Keith plant in Brockton, Mass., for $32,000 and will convert it into a mill to employ 300.

Stafford Looms, Stafford Springs, Conn., recently opened

THE QUALITY PRODUCT
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MORE yarn — and BETTER

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Cotton warps, single and ply
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Seamless grain bags.

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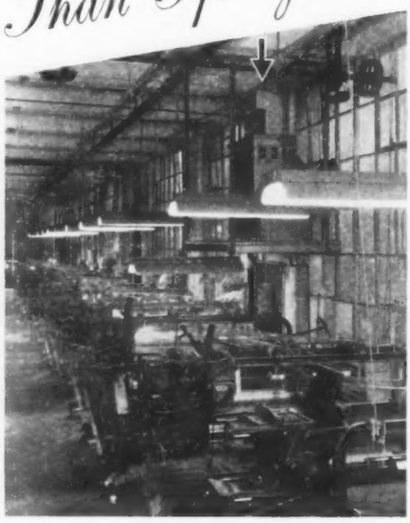

Humidification of the Air-Perme-Ator is by the principle of molecular suspension, which splits water into film instead of fine spray.

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There consequently is no spray to spot or injure yarn or equipment.

Air-Perme-Ator is in use by scores of important mills, in winding, warping, carding, spinning, and weaving sheds; in knitting plants; and dye houses.

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Consultants to the Textile Industry

a mill with 16 looms to produce women's-wear woolens. Herbert A. West and Alfio Fontanella are partners.

M. T. Stevens & Co., North Andover, Mass., has taken option on a large tract of land in Dublin, Ga., for construction of a woolen mill.

Strong, Hewat & Co., Inc., North Adams, Mass., has awarded contract to Aberthaw Construction Co., Boston, Mass., for a new mill building, 165 x 195 ft. to be located at Clarksburg, just outside of North Adams. Erection has begun.

Webb Yarn Co., Woonsocket, R. I., recently formed, has reached capacity production on knitting yarns, with 4,220 worsted spindles in operation. Lyndon Murray is president and superintendent.

Wottoquottoc Worsted Co., Hudson, Mass., has passed into the control of A. J. and Nathan Rosenstein, West Hartford, Conn., and the name will be changed to Bradford Spinning Co. The mill will specialize in knitting yarns.

Rayon and Silk Mill News

Belding Heminway Co., has let contracts for a new $1,500,000 thread-throwing mill in Morristown, Tenn. Excavations are under way. New machinery is reported to have been ordered.

Bruck Silk Mills, Ltd., Montreal, Que., has begun erection of a new mill at Sherbrooke, Que., and completion is scheduled for next summer. Cost, with equipment, is estimated at about $300,000. This company is also reported to be planning to start manufacturing rayon and rayon-and-wool textiles in Australia, with 10,000,000 lb. capacity.

Copeland Fabrics, Inc., Hopedale, N. C., has in progress an expansion program providing for the expenditure of about $600,000 over a period of two years. It is planned to install 230 more looms, enough to triple present capacity.

Courtaulds, Ltd., Cornwall, Ont., has asked bids on general contract for a new rayon staple fiber mill, and will make the award in April. This mill will also be equipped as a spinning unit, and will handle about 8,000,000 lb. annually. Cost with equipment, about $5,000,000.

Culpepper Textile Mills, Inc., Culpepper, Va., has been sold by A. H. Eastmond & Co., New York, N. Y., to Lewis Carpenter. The plant has 100 looms.

Duplan Corp., New York, N. Y., has let contract for structural steel framing for a new nylon processing plant at Winston-Salem, N. C., to Virginia Bridge Co., Roanoke, Va., and work will be started soon. Cost is reported over $325,000 with equipment.

Glass Fibers, Inc., has been formed to manufacture a line of glass staple fiber by a new process. It will also make glass "wool." Randolph H. Bernard, former director and executive vice-president of Owens-Illinois Glass Co., will be president and general manager.

John Hand & Son, Paterson, N. J., will erect a modern $150,000 silk and rayon weaving mill as soon as possible. Machinery will be moved from the plant the company now operates in Paterson.

New Bedford Rayon Co., New Bedford, Mass., has contracted to sell all of its rayon yarn production (about 4,000,000 lb. annually) to McKay Products Corp., Baltimore, Md. The latter firm is interested in Belle Knitting Corp., Sayre, Pa., which will manufacture circular-knit goods on a contract basis from yarns furnished by McKay Products Corp. and other sources.

Southern Silk Mills, Greensboro, N. C., recently awarded contract to Geo. W. Kane, Greensboro, for the construction of an addition to the weaving department. Plans were prepared by Lockwood Greene Co., Spartanburg, S. C.

Stanley Mills, Stanley, N. C., has broken ground for the erection of a new building which will double production capacity.

Virginia Mills Corp., Ferrum, Va., is a new $200,000 company which will process and throw rayon and other synthetic yarns. It will build a modern air-conditioned, windowless building and install spinning equipment of the latest type.

Of Time and Knitting Machines

Today Scott & Williams faces the greatest demand for circular knitting machines in its eighty-one years of history. To meet this demand our plant capacity is being greatly expanded. A fresh supply of skilled craftsmen is being trained in knitting machine building. New war-earned knowledge and experience are being applied to our manufacturing methods. However, a few facts regarding knitting machine manufacture will explain why full production cannot be achieved immediately.

First, a knitting machine is an extremely complex and delicate piece of industrial equipment. For example, all S & W models combined require more than 6,000 different parts, not counting duplicates. Many of these are extremely small and must be fashioned with great accuracy to assure precision operation over many years. Second, assembly and testing are necessarily time-consuming operations. In a standard machine, there are over 160 subassemblies. Many hours of actual knitting tests are given each macnine. Third, much of S & W's equipment is developed and built by the company itself, since no machine tools exist that are adaptable to some of S & W's special requirements. Time, of course, is needed to produce such equipment.

Yes, knitting machine manufacturing is exacting, time-consuming work. But S & W is making every effort to supply *you* at the earliest possible moment with the modern machines you need to best serve your trade.

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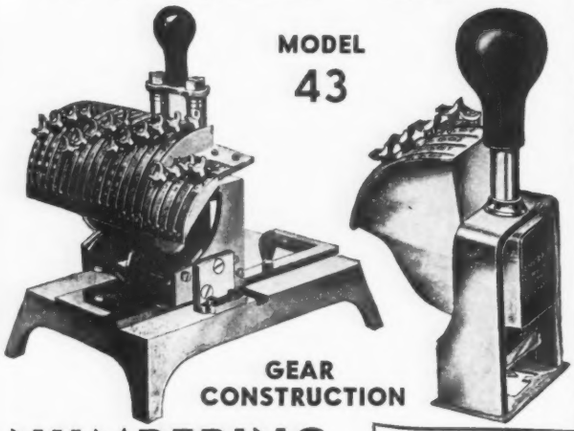

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SPEED SET Machines are used to number and mark industrial tags, labels, tickets, forms and cards. Numbers and letters can be instantly changed to various combinations—all-steel construction—steel engraved wheels—automatic inking—designed with any number of wheels and engraving for your own requirements.

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For Maintained Shrinkage—
Perfect Finish—Long Life

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HUYCK SANFORIZER and Palmer Blankets are daily meeting the most exacting requirements of finishers throughout the industry. From the lightest and finest fabric to the coarsest denim, there is a special Huyck blanket to meet your specific needs.

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NEWS ABOUT MILLS

Knitting Mill News

Archie Mills, Inc., Columbus, Ga., is the new name of the former Archer Hosiery Mills.

Armal Knitting Co., New Haven, Conn., has been established as a partnership by Albert J. Francis and Armand Call, both of Woodbridge, Conn.

Belvedere Hosiery Co., Charlotte, N. C., will begin work shortly on a one-story building. J. A. Jones Construction Co., Charlotte, has the contract. J. M. Hatch is president of the company.

Bothwell Knitting Mills, Newton, N. C., have begun operations in the plant formerly known as Adrian Hosiery Mill. R. L. Bothwell is president.

Chadbourne Hosiery Mills, Charlotte, N. C., recently bought Best Mfg. Co., Gainesville, Ga., at a cost of over $300,000 and changed the name to Gaybourn Mills, Inc.

Charles Hosiery Co., Gastonia, N. C., recently formed by James H. and Frank C. Tucker, is now producing 600 to 800 doz. prs. of men's and misses' gray socks weekly.

H. G. Choquet, owner of Glenshire Fabrics Co., New York, who has recently returned from the armed services, has purchased machinery and expects to start production of dress, glove, and underwear fabrics about May 1.

Conover Knitting Co., Conover, N. C., plans an addition to cost over $200,000 with equipment. J. E. Sirrine & Co., Greenville, S. C., are architects and engineers.

Denton, N. C.—A. R. Morris has awarded contract for construction of a modern mill and expects to be producing men's half-hose this summer.

Dilworth Hosiery Mills, Charlotte, N. C., recently chartered, are building a plant which will have space for about 300 knitting machines and will include finishing facilities and a warehouse.

Dovedown Hosiery Mill, Griffin, Ga., plans to add about 30% more machinery. The mill is being remodeled and air-conditioning units are being installed.

Durham Hosiery Mills, Durham, N. C., will make alterations, at a cost of $40,000, in preparation for production of 51-gage, full-fashioned hosiery.

Elliott Knitting Mills, Inc., Hickory, N. C., have begun operation of a branch unit at Cleveland, N. C., adding a fourth mill to the company's manufacturing facilities.

Gilkey Knitting Mill, Marion, N. C., will be established for the manufacture of infants' and children's underwear by W. K. M. Gilkey and his son, John.

Hadley Mills, Inc., Holyoke, Mass., organized with capital of 5000 shares of no par stock, plan operation of a local outerwear knitting mill. Wallace Garber, Holyoke, is president and treasurer.

Hillcrest Hosiery Mills, Inc., newly organized, have bought the machinery and equipment, and leased the buildings of the hosiery division of Golden Belt Mfg. Co., Durham, N. C., for a sum reported to be about $500,000. Orders have already been placed for $600,000 worth of new machinery.

Holeproof Hosiery Co., Milwaukee, Wis., has let contract to Currie & Corley, Raleigh, Miss., for a new one-story mill at Quitman, Miss., and erection will begin soon. Cost, exclusive of equipment, about $171,000. Johnson & Risher, Meridian, Miss., are architects.

Hudson Hosiery Mill, Charlotte, N. C., has begun grading on the site on which it will build a new hosiery mill. Seven dwellings also will be built.

Irving Knitting Mill, Lexington, N. C., recently awarded contract for erection of a 40 x 50 ft. addition which will approximately double present plant.

Kenosha Full-Fashioned Mills, Inc., Kenosha, Wis., expect to add 20% to their production. Machinery is on order.

Larkwood Hosiery Mill, Charlotte, N. C., has awarded contract to C. M. Guest & Son, Greensboro, N. C., for construction work on its $250,000 expansion and modernization program.

Lawrence Knitting Mill, Inc., Brooklyn, N. Y., has obtained permission to change its name to Adam Knitting Mill, Inc.

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For the Hosiery and Knitting Trades

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NEWS ABOUT MILLS

Magnet Mills, Inc., are planning improvements at hosiery plant in Clinton, Tenn. Air-conditioning equipment is to be installed this spring, and new knitting machines will be added in the next few years.

Mock - Judson - Voehringer of North Carolina, Inc., Greensboro, N. C., is planning a long-range expansion and improvement program which will cost about $1,500,000 and increase production about 50% over pre-war levels. Approximately 100 new machines have already been ordered. Lighting in the plant will be rearranged and improved, and a new air cooling system, in addition to present facilities, will be installed.

Monroe Hosiery Mills, Black Mountain, N. C., recently organized, purchased a 30-machine hosiery plant at Sweetwater, Tenn.

Newton Knitting Mills, Newton, N. C., manufacturers of men's hosiery, are building a $120,000 addition to be used as a finishing plant. An 8-room office building is also being built.

North State Knitting Mill and **Hickory Knit Products, Newton,** N. C., are constructing a one-story building, 100 ft. long. Jersey cloth and outerwear will be manufactured.

Propper - McCallum Hosiery Co., Northampton, Mass., has launched a program of consolidating knitting equipment in a new plant in Florence, Mass. The concern will purchase $300,000 worth of machinery.

Queens Knitting Mills, Philadelphia, Pa., doubled operating space in a recent move to another building and will double production. The plant is being completely re-equipped with new machines for knitting, winding, and sewing.

Ridgeview Hosiery Mill, Newton, N. C., will install 30 new 400-needle fine-gage knitting machines.

Smart Sox Hosiery Mill, High Point, N. C., has begun making women's and children's seamless hosiery. Twenty-five machines have been installed. Vernon Idol and W. I. Brown are proprietors.

Spencer Hosiery Mill, Newton, N. C., newly organized, has begun operation. It is owned and operated by Buford Spencer, formerly with Adrian Hosiery Mill, Newton.

Vanity Fair Silk Mills, Reading, Pa., will occupy, under a long-term lease, a plant in Jackson, Ala., to be erected by Clark-Washington Industries, Jackson. Cost reported over $50,000. H. V. Biberstein, Charlotte, N. C. is architect.

Waldridge Knitting Mills, Jonesboro, Ark., have started production and will manufacture about 12,000 pairs of anklets weekly. Approximately 150 people are employed. Equipment includes 62 knitting machines, 20 ribbing machines, 23 looping units, 100 board forms, one extractor, and four dye vats.

Dyeing and Finishing Plant News

Applikon, Inc., New York, N. Y., has purchased part of the property of Firestone Mills, Fall River, Mass. About half of the property's 100,000 sq. ft. of floor space will be turned into a plant for both screen and machine printing.

Dartmouth Finishing Corp., New Bedford, Mass., is now set up in a building which was formerly the weaveshed of Dartmouth Mills. The plant will do roller printing. Andrew McNicol is president and general manager.

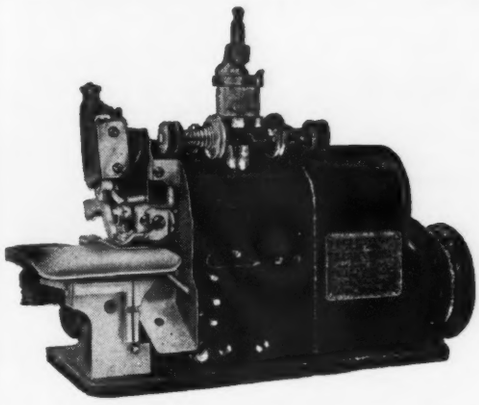
Fall River Dyeing & Finishing Co., Fall River, Mass., has started up its new dyehouse at 85 Portland St., specializing on dyeing and bleaching cotton and woolen yarns, thread, or narrow fabrics in skeins. Facilities are also available for rewinding from skeins to any put-up. George W. Hopkinson, formerly with Hopkinson Dyeing & Textile Works, Fall River, for many years, is in charge.

Goss Coated Fabrics Co., Los Angeles, Calif., plan construction of a three-story, reinforced concrete loft building at Olympic Blvd. and Wall St., 104 x 145 ft.

Hand Prints, Inc., Wappingers Falls, N. Y., will build a new plant in Newburgh, N. Y., as one item in its $75,000 expansion program.

Pepperell Mfg. Co. has a $2,000,000 bleachery under construction at its Opelika, Ala., division. Homer Carter continues as manager of this division.

Supreme Textile Printers, Inc., Long Island City, N. Y., has been incorporated with capital of $130,000 to operate a dyeing, printing, and finishing plant in Queens Borough. Irving Kaufman, New York, N. Y., is attorney and representative.



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OVEREDGING, OVERSEAMING AND HEMMING MACHINES

For Use on Knitted and Woven Wear of All Kinds

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Convenient Handling

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Obtain Maximum Quality Production by Using a Machine Suitably Arranged for Your Work—Our Distributors or Our Direct Representatives Are on Call to Advise You on Suitable Machine Arrangements for Various Results and Proper Care and Operation of Machine.

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THE MERROW MACHINE COMPANY

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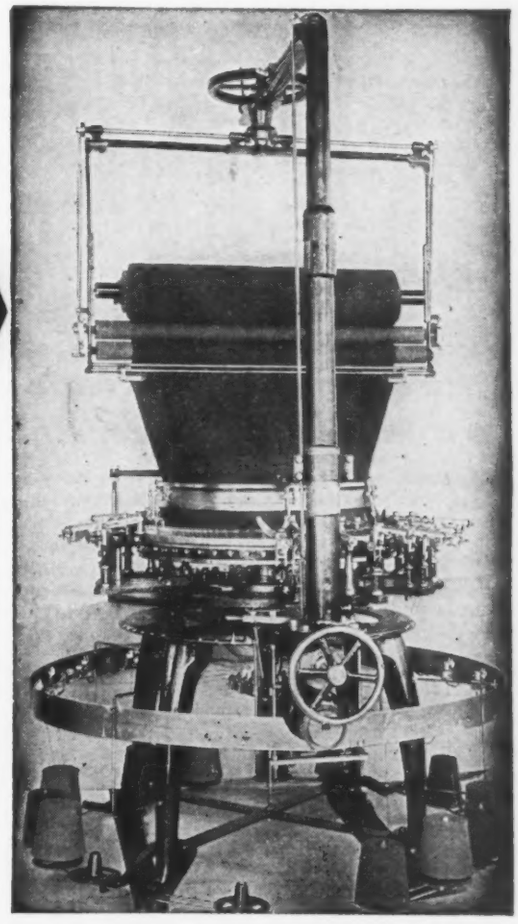
Single Head Spring NEEDLE Knitting Machine



PRODUCES 100 YARDS PER 8 Hr. DAY

The New S-1 Single Head Spring Needle Machine is especially designed for overcoating materials. At the same time, *any* fabric can be knit on it that is knit on the older type spring needle table!

Production is approximately 100 yards per 8 hour day, using 6 feeds.

Features: Electrical driven by V belt simplified motor drive . . . electrical yarnstop motion . . . and needle stop motion.

Install one of these machines today, and in a few hours after reaching the mill it will be ready for operation!

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Let Southworth Help You

Let Southworth help you in making your plans for extra Business and extra Profits. Get the increased production and lower costs made possible by SOUTHWORTH'S new, improved, TEXTILE HUMIDIFYING SYSTEMS.

A new SOUTHWORTH system will give you a simplified design that means better evaporation and more sensitive control combined with exceptionally flexible power.

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Textile Humidifying Systems

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TIDEWATER RED CYPRESS Is the Answer to Any Problem of DECAY... ODOR, TASTE or ACID!

...Its Superior Qualities Make It Ideal for a Wide Range of Industrial Uses

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NEWS ABOUT Men

Franklin W. Hobbs, for 33 years president of Arlington Mills, Lawrence, Mass., and with the company for 55 years, became chairman of the Board on Apr. 1. His son, **Marland C. Hobbs**, with the company for 27 years, succeeds him as president of the organization. The senior Mr. Hobbs entered the business in January, 1891, and was made assistant treasurer in 1895. In 1902 he became treasurer and in 1913 was elected president.

Daniel J. Stowe, of Belmont, N. C., has been elected president of the newly-organized Catawba Converting Co., Belmont, which will manufacture and deal in hosiery and textiles. **Herbert W. Coble**, of Burlington, N. C., has been named vice president, and **William J. Stowe**, of Burlington, has been elected secretary-treasurer.

Geo. R. Farms, formerly assistant secretary and assistant treasurer of Golden Belt Mfg. Co., Durham, N. C., has been named vice-president to succeed **Matt L. Thompson**, who resigned to become president of Hillcrest Hosiery Mills, Inc., Durham.

Albert A. List has been elected president of Monomac Spinning Co., Lawrence, Mass., and **Ernest C. Hay** has been elected to the board. Mr. List is also president of William Whitman Co., Inc., New York, N. Y., with which Monomac is affiliated.

Robert W. Twitty, Darlington, S. C., has been elected president and treasurer of Marion Mfg. Co., Marion, S. C.

J. W. Greene, who was released from the Army last fall, has become head of the Hartsville Cotton Mills, Hartsville, S. C.

Wilfred Ward was selected president of Providence Dyeing, Bleaching & Calendering Co., Providence, R. I., by the board of directors.

G. Ogden Persons has been elected president of Forsyth Cotton Mills, Forsyth, Ga., to succeed his late brother, **Robert T. Persons**.

Agnew H. Bahnson, Sr., has been elected chairman of the board of Arista Mills Co., Winston-Salem, N. C., and **Albert L. Butler, Jr.**, recently out of the Army and formerly with Chatham Mfg. Co., Elkin, N. C., has been named president.

Carlton A. Slocum has been appointed executive vice-president by Millburn Mills, Inc. of Quidnick, R. I., with New York offices at 145 Sixth Ave. For the last 11 years, Mr. Slocum has been vice-president in charge of sales at the Chicopee Sales Corp., and is chairman of the textile section of the New York Board of Trade.

Wallace E. Stoddard, of Adams, Mass., vice president of the Berkshire Fine Spinning Associates, Inc., has retired after 51 years of active association with the textile industry.

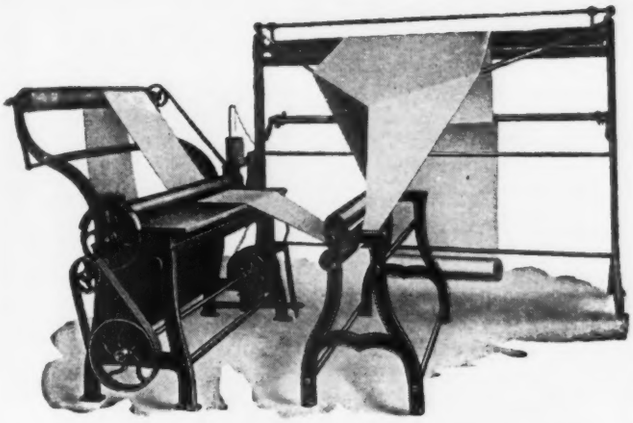
Miss Marie E. Bogen has been elected vice-president to be in charge of merchandising operations of Consolidated Textile Co., New York.

A. W. Kops has been elected vice-president of Zephyr Mills, Inc., Coopersburg, Pa.; Ellisville Hosiery Mills, Inc., Ellisville, Miss., and W. F. Hofford, Westport, Pa. **Donald V. Smith** is president of these companies.

G. C. Denebrink, general sales manager of the Bigelow-Sanford Carpet Co., Thompsonville, Conn., has been elected a vice president.

Jean Pinatel recently resigned as vice-president of Associated Textiles of Canada, Ltd., and as general manager of the Louiseville, Que. plant. Mr. Pinatel joined the company in 1929.

Felix J. McGowan has been elected vice-president and treasurer, as well as a director, of Julius Forstmann Corp., New York. Mr. McGowan is in charge of all sales of Forstmann's



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American Woolen Company

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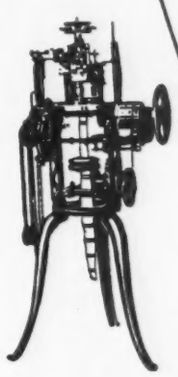
WITH BRINTON CIRCULAR KNITTING MACHINES



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For
WEAVERS-KNITTERS
MONTGOMERY
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Designers and Spinners of Novelty Yarns

NEWS ABOUT MEN

women's wear fabrics to retail stores. As the same time, **Osro M. Stephens,** of Los Angeles, was elected a vice-president of Forstmann Corp.

Charles W. Carvin of New York, vice-president of Industrial Rayon Corp. since 1941 and in charge of sales since 1943, has been elected to the board of directors to fill the vacancy caused by the death of Fred W. A. Vesper of St. Louis.

Irving C. Valentine was elected vice-president of Winsted Hosiery Co., Winsted, Conn., to succed **Charles D. Viall,** who retired. **Albert E. Radcliff** was elected secretary-treasurer at the same time.

Norman T. Thomas has been appointed vice-president in charge of all manufacturing operations of Naumkeag Steam Cotton Co., in Salem and Peabody, Mass.

Geo. W. Ewald, recently returned from the Navy, has been elected to the newly created office of executive vice-president of Concordia-Gallia Corp., Philadelphia, Pa.

Wm. Shields has been appointed production manager of the Meridian, Miss., plant of Artcraft Hosiery Co. He was formerly with Amos Hosiery Mills, High Point, N. C.

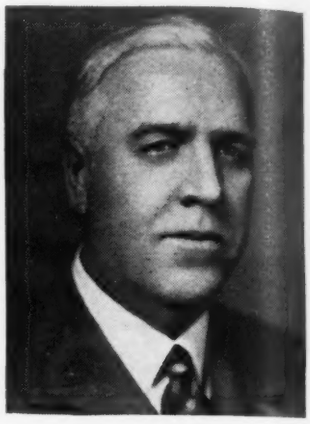
E. W. Cutter has been named superintendent of the Cutter Mfg. Co. plant in Rock Hill, S. C.

Robert L. Richards has been appointed assistant manager of the rayon department of E. I. du Pont de Nemours, and **Robert A. Ramsdell** has succeeded him as manager of the nylon division, who in turn was succeeded by **Charles M. Switzer** as assistant manager of the nylon division.

Harold J. Michel has joined American Viscose Corp. as manufacturing superintendent of the ciscose rayon plant in Lewistown, Pa. He was formerly manager of Skenandoa Rayon Corp.'s Utica, N. Y. plant.

Col. Charles H. Dyson, recently out of the Army Air Corps, has been named treasurer of Textron, Inc., Providence, R. I.

Wm. N. Freyer, director of products of Bigelow-Sanford Carpet Co., Thompsonville, Conn.,



***DUNCAN FERGUSON,** manager of manufacturing for Sidney Blumenthal & Co., Inc., at Shelton Looms, Shelton, Conn., who has been elected vice-president in charge of manufacturing.*

has been elected a vice-president of the company.

George L. Lowe, plant superintendent at Textron, Inc. of Easthampton, Mass., has been promoted to plant manager, succeeding **Victor Blatteis,** who left to organize his own selling organization.

Arthur Worth will become resident manager of Ounegan Mills, Oldtown, Me. He has been superintendent of American Woolen Co.'s Webster Mills, Webster, Mass.

Marshall Rawle has been elected vice-president of Textron, Inc., Providence, R. I.

Horace C. Weston, after two and one-half years in the Navy, has returned as treasurer of Mayflower Worsted Co., Kingston, Mass.

Wm. Shields has been appointed production manager of the Meridian, Miss., plant of Artcraft Hosiery Co. He was formerly with Amos Hosiery Mills, High Point, N. C.

Edwin F. Silk has joined S. Stroock & Co., Inc., Newburgh, N. Y., as superintendent and assistant to **Curt Richter,** vice-president in charge of mill operations.

J. O. Thomas, personnel manager, Marshall Field & Co., Manufacturing Division, Spray, N. C., returned to his position recently after four years of military service with the Army. Mr. Thomas is also a veteran of World War I.

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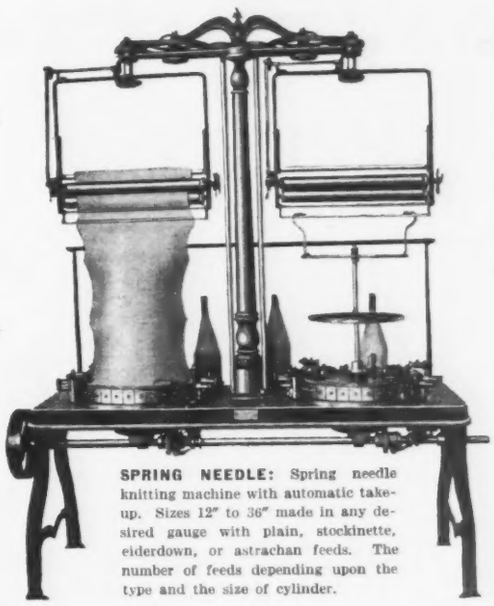

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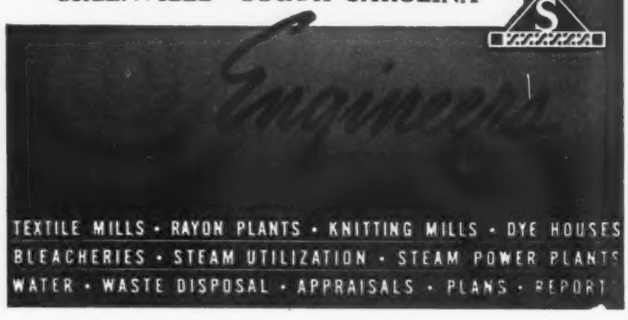

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BLEACHERIES • STEAM UTILIZATION • STEAM POWER PLANTS
WATER • WASTE DISPOSAL • APPRAISALS • PLANS • REPORT

NEWS ABOUT MEN

Wm. K. McCampbell, due to be released from the Army shortly, will resume his position as secretary of Graniteville Mfg. Co., Graniteville, S. C.

W. M. Holcombe, secretary of Spartan Mills, Spartanburg, S. C., has succeeded **E. M. Mathewes** as assistant treasurer. Mr. Mathewes resigned.

Alphonse Conrad, recently discharged from the Army, returns to Unity Knitting Co., Union, S. C., as secretary. His father, **J. A. Conrad,** is president and treasurer.

F. M. Nash, Jr., has been named treasurer of Brighton Mills, Shannon, Ga.

Herbert J. Sanders has returned to American Viscose Corp. from Army service and has rejoined the Fabric Development Department, where he will assist **Pierre Sillan,** manager of the department, in handling customer contacts and in the general work of the department.

Wm. G. Stainton, treasurer of Appleton Mills, Greenville, S. C., for the last six years, has been appointed general manager.

G. Raymond Hahn has been appointed associate in charge of production of finished woven decorative fabrics for Elmer P. Scott Co., New York. Mr. Hahn was formerly associated with Wellington Sears for 23 years.

S. R. Oresman, for the last 25 years treasurer of Millburn Mills, Inc., and director and manager of their finishing and dyeing plant at Quidnick, R. I. has resigned to form his own cotton and rayon converting business, S. R. Oresman & Co., Providence, R. I.

Arthur H. Fuller, recently released from the Army as a lieutenant colonel, has accepted the position as cotton buyer for Textiles, Inc., Gastonia, N. C.

Charles Reichman has resumed his post as editor of the *Knitted Outerwear Times,* official organ of National Knitted Outerwear Association, New York. He returned in March after two years Army service.

Howard Beckman, New York, sales agent for Winchester Woolen Co., Winchester, Va., has returned after serving with Army Air Corps for two and one-half years.

E. W. Dunham, Jr., formerly assistant secretary of Erwin Cotton Mills, Durham, N. C., before entering the Army in 1942, has become associated with the southern division of General Ribbon Mills. He will be temporarily at Chatasauqua, Pa.

Aubrey M. Evans has resigned as director of advertising and sales of Utica & Mohawk Cotton Mills, Utica, N. Y., and will become sales manager of Duofold, Inc.

G. Howard Smith, formerly superintendent of the Lindale, Ga., plant of Pepperell Mfg. Co., is now assistant manager. **Robert J. McCamy** succeeded him as superintendent, and **Robert O. Simons,** overseer of dyeing and head of the technical laboratory, became assistant superintendent.

John P. Howland, recently out of the Navy, has rejoined Pepperell Mfg. Co., and will be in charge of all converting operations at the company's Opelika Bleachery, now under construction at Opelika, Ala.

Lawrence Brennan, formerly night superintendent of the M. T. Stevens & Sons Co. mill in Peacedale, R. I., is now assistant superintendent. He succeeds **Richard Clarenbach,** who has replaced **Wm. Edwards,** retired, as superintendent of the company's mill in Franklin, N. H.

C. B. Shoemaker has been appointed manager of viscose rayon staple manufacturing of the American Viscose Corp. He had previously been assistant manager of viscose production and manager of the Nitro, W. Va., plant. **Dr. Dan B. Wicker,** superintendent of the plant at Nitro, will be associated with Mr. Shoemaker as process manager of viscose rayon staple manufacturing.

W. H. Tedford has become manager of Kendall Co.'s Mollohon plant in Newberry, S. C., succeeding **W. M. Todd,** who becomes manager of the company's Pelzer Mills, Pelzer, S. C.

Roddy A. Field of Pacific Mills has succeeded Clarkson Jones as general manager and assistant treasurer of Rhodiss Cotton Mills Co., Hickory, N. C. The latter company's com-

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WAK INDUSTRIES
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NEWS ABOUT MEN

mon stock was purchased by Pacific last September.

Wm P. Crawley has joined the textile research department of American Viscose Corp., Marcus Hook, Pa., as a textile engineer in the industrial division.

E. G. McIver, Jr., has left the Navy to return to his former position as assistant superintendent of the Pearl plant of Erwin Cotton Mills Co., in Durham, N. C.

Miss Helen A. Borski has been named assistant plant manager of Cleveland Worsted Mills Co., Cleveland, Ohio.

Wm. B. Thomas, formerly technical superintendent at Riverside & Dan River Cotton Mills, Inc., Danville, Va., has been made superintendent of the Richland plant of Pacific Mills in Columbia, S. C.

Abraham Segal, chief economist of the Rayon Section, OPA, has resigned to take an executive position with American Silk Mills, Inc., New York, N. Y.

W. M. Todd, formerly manager of the Mollohon plant of Kendall Mills, in Newberry, S. C., has become manager of that company's Pelzer, S. C., plant.

Robert Anderson, superintendent at the Ravenna, O., plant of the Cleveland Worsted Mills, Cleveland, O., has been elected to the board of directors succeeding **Howard Bennett,** resigned.

L. C. Pierce has joined the commission throwing department of Duplan Corp., where he will assist **N. P. Murphy,** who is in charge of the district office in Greensboro, N. C.

Clyde Garrison, since 1944 a member of the main office force of the Burlington Mills Corp., Greensboro, N. C., has been placed in charge of all mill offices of the company.

John P. Dougherty has rejoined the American Viscose Corp's. textile research department as an assistant in the woolen and worsted divisions, after four years of service with the U. S. Army.

Frank A. Cook, industrial relations manager for Slater Mfg. Co., Slater, S. C., for the last four years, has been promoted to industrial relations director for the entire Carter Fabrics organization, with headquarters at Greensboro, N. C. He has been succeeded at the Slater plant by **Robert H. Atkinson.** Mr. Atkinson has been succeeded by **Allen Suttle.**

Charles J. Mozur, vice president and general manager of Native Lace Works, Inc., Hightstown, N. J., has resigned. **Alan J. Bisbee,** formerly his assistant, has been appointed general manager. Mr. Mozur will act as a consultant.

Thomas B. Hill has resigned from Verney Fabrics Corp. where he has been manager of the finished rayon fabric sales to the cutting up trade of New York City. He was at one time associated with Iselin-Jefferson Co.

W. Beatty Armstrong, with Susquehanna Mills, Inc., New York, for the last four years, has become associated with Peerless Spinning Corp., Lowell, N. C.

Paul E. Higgins has joined Cheney Bros., Manchester, Conn., in an executive capacity. Before the war he was with Cohn-Hall-Marx Co.

R. W. Glidden is now designer in the American Woolen plant, at Norwich, Conn.

James Richardson, who has been overseer of weaving in the Wood Mill since the day that the plant was started, has resigned. He has been responsible for the work in the 1500-loom weave room for about 37 years.

Max Wagner, overseer of spinning, has gone from Windsor Locks, Conn. to the Thermo Mills, Inc., Hudson, N. Y.

Emil J. Farland, formerly overseer of weaving in the Jackson Main Mill, took over the same duties in the Nashua Main Mill of Nashua Mfg. Co., Nashua, N. H. He was succeeded at Jackson Main Mill by **Edward R. Benoit,** who had been assistant overseer in the Nashua main weave room. **Joseph A. Herbert** was advanced from second hand to overseer of the Nashua trimming department. **Anthony Stawasz** was advanced from second hand to overseer in the Nashua No. 6 Mill.

T. J. McNeely, formerly superintendent of Locke Cotton Mills, Concord, N. C., has succeeded **R. B. Hughes** as superintendent of Davidson Cotton Mills, Inc., Concord.

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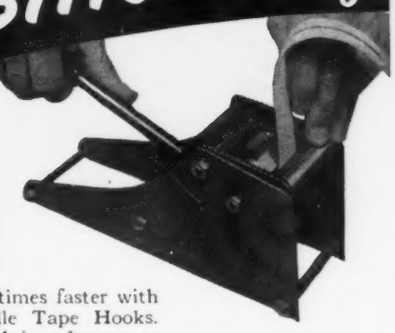
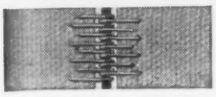


SPINDLE TAPE LACING EQUIPMENT



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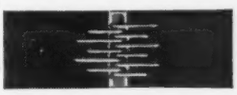

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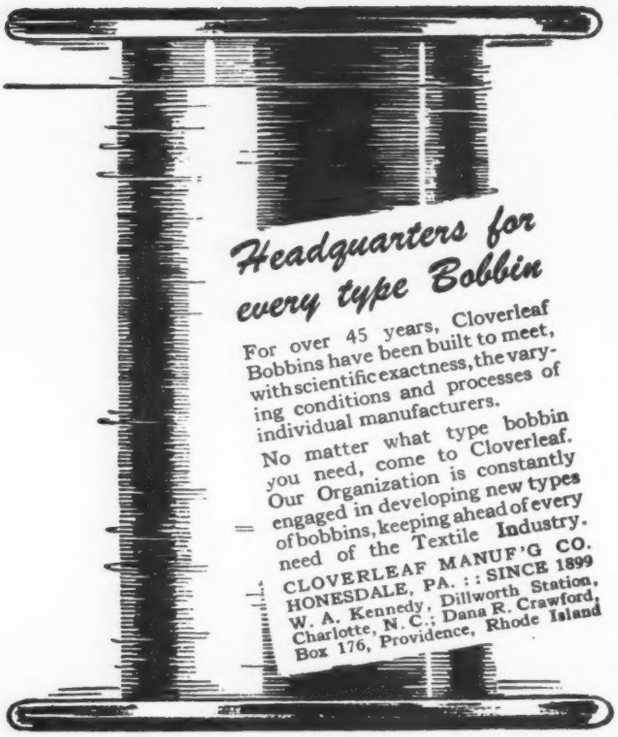
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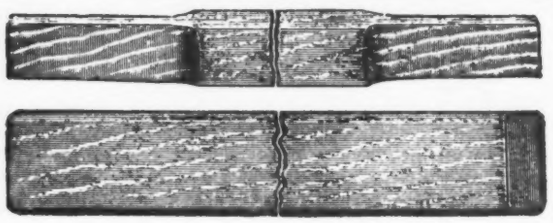

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PAY ROLL CONTROLS
COST REDUCTION SURVEYS SPECIAL REPORTS

GREENVILLE, S.C. FALL RIVER, MASS.

Obituary

James A. Huff, 70, president of Rockwood Hosiery Mills, Rockwood, Tenn., died Mar. 11. He had been active in the industry for more than 50 years.

John R. Snelling, 39, president of Winder Cotton Mills, Winder, Ga., died Mar. 5.

R. F. Craig, 68, president and treasurer of Alba Twine Mills, Inc. and president of Lola Mills, Inc., both of Stanley, N. C. died recently. Mr. Craig was also president of Gaston County Dyeing Machine Co., of Stanley.

Charles Hartley Walker, 66, engaged in woolen manufacture for many years, died in Ware, Mass., Feb. 6. He was associated with his father, the late Dennison Walker, in operating the Walker Woolen Mills in Ware.

L. B. Mann, 85, president of Newnan Hosiery Mill, Newnan, Ga., died recently.

Charles N. Winship, 83 died recently in Sebring, Fla. Mr. Winship was co-founder of Harvard Knitting Mills, Wakefield, Mass.

Z. D. Fountain, 62, president of Mann-Fountain Textile Co., Philadelphia, died last month.

Luther Knowles, Jr., Southern agent of the Clinton Co., Clinton, Iowa, died recently at Charlotte, N. C.

Walter Guerry Green, 78, president of Glencoe Mills, Burlington, N. C., died at Charleston, S. C., Mar. 14.

Platt E. Glenn, 68, secretary-treasurer of Expositoin Cotton Mills, Atlanta, Ga., died Feb. 24. He was a former president of the Cotton Manufacturers' Association of Georgia.

E. Lee Smith, 75, secretary of Pepperton Cotton Mills, Jackson, Ga., died in Macon, Ga., Mar. 19.

George John Eckert, 56, cotton merchant of Memphis, Tenn., and former president of Memphis Cotton Exchange, died recently.

John Noble Wyllie, 90, for years a director of Riverside & Dan River Cotton Mills, Danville, Va., died recently.

C. W. Coleman, 59, a director of Callaway Mills, LaGrange, Ga., died recently.

William Bennie Coble, 42, general manager of Spray Cotton Mills, Spray, N. C., for a number of years died Mar. 13.

William A. Heartt, pioneer in adapting cotton processing equipment to the handling of rayon and at one time with E. I. du Pont de Nemours & Co., died recently at Hillsboro, N. C.

William E. Henry, 73, manager of Niagara Crepe Co., Swampscott, Mass., died Mar. 12.

Bernard F. Gilmore, 61, of Lowell, Mass., technical adviser to L. Briden Co., Clinton, died March 3. Mr. Gilmore was formerly agent of Silesia Mills, North Chelmsford, and had been superintendent for 22 years of National & Providence Worsted Mill, Providence, R. I.

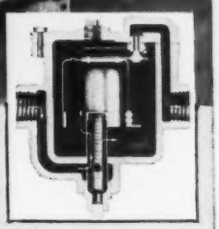
Fred Treat, several years ago South American agent for Universal Winding Co., Providence, died recently in Arizona.

Arthur T. Mullen, 59, of West Concord, Mass., manager of the Industrial shop at the Concord Reformatory died at his home recently. He was a former treasurer of the Blackstone Valley Mills Association; former superintendent of Wilton Woolen Co., Wilton, Me., and a former assistant superintendent of Mayo Woolen Mills Co., Millbury, Mass.

Franz H. Schwarz, 80, Lawrence, Mass., retired superintendent of the Lower Pacific Worsted Mill, died Mar. 17. A native of Boston, he was a graduate of Massachusetts Institute of Technology. His son, Prof. E. R. Schwarz of M.I.T., survives him.

James F. McEnneny, manufacturing superintendent of Universal Winding Co. plant, Cranston, R. I., died Mar. 18, in Providence, R. I. He was at one time associated with Wardwell Branding Co., Central Falls, R. I.

James E. Stone, 41, superintendent of Aragon-Baldwin Cotton Mills, Rock Hill, S. C., for the last five years died recently.



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For heavy duty where intermittent discharge of condensate is not objectionable, such as unit heaters, separators, presses, and main steam lines. Straight through connection and built-in strainer. Easily piped in minimum space. All mechanism attached to removable cover. Standard sizes to 250 lbs. Forged steel types to 900 lbs. Bulletin 350.

195

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Style 27

LANE BASKET TRUCKS

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All Textile, Garment, and
Many Other Industrial Plants

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Mfrs.
Poughkeepsie, N. Y.

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Two exclusive features Affording Long Life

1. Automatic-bobbin holders equipped with holding wings electrically hardened all the way through.
2. Holding wings held positively in position by skeleton washer—no sliding around.

We make holders for ¾" to 2½" bobbin heads, including large-package wood and paper bobbins, also special bobbins. Duplex holders take both automatic and non-automatic bobbins.

Holders for all types of mules, frames, twisters and winders.

MURDOCK & GEB CO., Franklin, Mass.
Manufacturers of Bobbin Holders for Over Fifty Years

WE'VE LEARNED A LOT IN OUR 50 YEARS

50 years of specialized experience in producing tanks and tubs for the textile industry *has taught us some things that will be valuable to you!*

Let us tell you about our complete Caldwell service, which includes Stainless Steel-lined tanks and tubs—round, rectangular and special shapes.

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W. E. CALDWELL CO.
INCORPORATED
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ALL STEEL ECONOMY BALING PRESSES

ALL SIZES FOR ALL PURPOSES
LARGEST LINE BUILT IN U.S.A.

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CARBOMATIC CORPORATION

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Also—H. W. Butterworth & Sons Co., Philadelphia, Pa.
In Canada—Canadian Textile Engrg. Ltd.
980 St. Antoine Street, Montreal, P. Q.

TEXTILE WORLD'S SYNTHETIC-FIBER TABLE

from the September, 1945, Issue has been

REPRINTED AGAIN

The face of this now famous chart, which measures 29" by 20", compares the properties of the following commercial synthetic fibers:

VISCOSE ACETATE CUPRAMMONIUM NYLON VINYON FIBERGLAS ARALAC VINYLIDENE PLEXON SYNTHETIC RUBBER

Compared are: methods of manufacture, tensile strengths, tensile stresses, elongations at break, elastic recoveries, average stiffnesses, average toughnesses, regains or adsorptions, water absorbencies, specific gravities, dielectric strengths, effects of heat, effects of age, effects of sunlight, effects of acids, effects of alkalis, effects of other chemicals, effects of organic solvents, dyes used, resistances to moths, resistances to mildew, types and sizes produced, typical uses, producers and trade names, and typical stress-strain curves.

OTHER DATA INCLUDED

On the back of the chart is a TABLE OF COMMERCIAL SYNTHETIC YARNS AND FIBERS, giving the deniers and filament counts of all continuous-filament yarns, including tow, and the deniers and lengths of all staple fibers. Tensylon is included.

Also on the back is a discussion of new fibers not yet commercially available, including Rayolanda, soybean, zein, Ardil, keratin, albumen, polyvinyl-alcohol, alginate, gelatin, polyethylene, aluminum, etc.

Still another table shows the production of items made from rayon and the consumption of rayon, comparing in both cases 1945 with 1944.

Curves show the United States production of rayon from 1920 to 1945.

And, finally, another chart shows stress-strain curves plotted together to facilitate ready identification of various fibers.

HELPFUL AND CONVENIENT

Never before have so much data on synthetic fibers been compiled and published in this convenient form. In effect, a ready reference library on synthetics is assembled on just one sheet of paper. A copy belongs on the wall or in the desk of every progressive textile man who is likely to be faced with the use of synthetic fibers or who has to answer questions concerning them.

Copies are available at 25 cents each—10 cents each in quantities of 50 or more.

TEXTILE WORLD

Editorial Department

330 W. 42nd St., New York 18, N. Y.

CLIP AND MAIL TODAY

Editorial Department,
TEXTILE WORLD
330 West 42nd St., New York 18, N. Y.

Enclosed please find $..... for ..... copies of TEXTILE WORLD's SYNTHETIC-FIBER CHART (25 cents each—10 cents in quantities of 50 or more). Please mail the copies to following address:

My Name .....

Street and Number .....

City .....

State .....

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The advertising rate is $5.75 per inch for all advertising appearing on other than a contract basis. Contract rates quoted on request.

AN ADVERTISING INCH is measured ⅞ inch vertically on one column, 3 columns—30 inches—to a page. T.W.

NEW ADVERTISEMENTS received by 10 A. M. April 30th will appear in the May issue, subject to limitation of space available.

WANTED

COTTON MILL SUPERINTENDENT

Must have experience in cotton carding and spinning; knowledge of processing rayon blends preferred but not essential. Mill has approximately 12,000 spindles and is located in the South. The following qualifications are necessary: absolute reliability, ability to handle people, friendly but strong personality. Fine opportunity to build this job into a very interesting position with a large well-known organization. Please write fully, giving experience and background.

P-615, Textile World
330 West 42nd Street, New York 18, N. Y.

WANTED

FOREMAN

Very capable full charge foreman for wool spining plant. Acquainted all phases. References. Box No.

P-616, Textile World
330 West 42nd Street, New York 18, N. Y.

WANTED

FACTORY MANAGER

SPORTSWEAR PLANT

Position available soon in Eastern New England

Must know Mens and Boys sweater and jacket manufacturing from start to finish.

State age, martial status, employment record and all pertinent data. All replies confidential.

P-611, Textile World
330 West 42nd Street, New York 18, N. Y.

TEXTILE ENGINEER

National Merchandising organization has opening in its testing laboratory for textile engineer. Training in Physics, Textile and Engineering necessary. Must be familiar with testing consumer textiles, especially physical tests, and be able to interpret results. Ability to write reports essential. Prefer man age 30-35. Replies confidential.

P-612, Textile World
520 North Michigan Ave., Chicago 11, Ill.

WANTED

TRICOT MACHINE FIXER

Excellent opening for only first class expert. Give full details and salary required. Write

P-614, Textile World
330 West 42nd Street, New York 18, N. Y.

SUPERINTENDENT
Rayon Weaving Mills

fully familiar with quality, cost and production controls. Experienced in modern management methods. Good remuneration with incentive.

P-619, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

TEXTILE ENGINEER

Familiar with design of Textile machinery and equipment. Permament position with future. Location New York City. Applicants state age, education, previous experience and salary desired. All replies confidential.

P-581, Textile World
330 West 42nd St., New York 18, N. Y.

WANTED

TEXTILE ENGINEER

Large textile mill wants man with college degree in engineering who has had technical and mill training. He must be familiar with fabrics and manufacturing processes of plush and carpet. Excellent opportunity for right man. Write full background and experience.

P-625, Textile World
330 West 42nd Street, New York 18, N. Y.

POSITION VACANT

WANTED WORSTED Plant Manager and Designer—piece-dyed men's and women's wear—100 looms—mill situated in Canada. State technical and moral qualifications. Knowledge French language, salary wanted. P-525, Textile World, 330 W. 42nd St., New York 18, N. Y.

POSITIONS WANTED

TEXTILE TECHNOLOGIST, age 30, degree in chemistry; 5 years thorough experience in textile laboratory. Versed in all phases of cloth and yarn analysis. Will locate within 100 miles of N. Y. C. PW-626, Textile World, 330 W. 42nd St., New York 18, N. Y.

ADVERTISEMENT: DESIGNER, British subject, at present residing in Australia, textile technical school graduate with 20 years experience of narrow and broad woven cotton linen and art silk manufacturing in Hungary, Italy, France and Australia, seeks position either as designer or research workers in Canada or U. S. A. PW-627, Textile World, 330 W. 42nd St., New York 18, N. Y.

KNITTER-MECHANIC, first class machinist, 20 years of broad experience, executive ability, desires change of position. Knitting mill or machine shop. Prefer N. Y. area. PW-628, Textile World, 330 W. 42nd St., New York 18, N. Y.

TEXTILE YARN. Consultant at present employed desires to make a change. 20 years of experience in the manufacture of asbestos and woolen yarns. Familiar with all types of full roller cards. Spinning, spooling and twisting equipment. Was erecting road mechanic for Whitin Machine Works. PW-629, Textile World, 520 N. Michigan Ave., Chicago 11, Ill.

TECHNICIAN EXPERIENCED man capable of taking technical care of openers, pickers, cards, lap winders, drawing frames, roving frames combers, spinning frames, twisters, and cone winders. Had first training in Saco Lowell Shops, now employed in South American mill, wishes to secure position with United States or Latin American textile mill, best references. PW-630, Textile World, 330 W. 42nd St., New York 18, N. Y.

(Continued on page 274)

Converter Woolens Worsteds

Young man, veteran, textile college education, several years experience all phases manufacture woven fabrics, including styling, designing, production management with leading mills and N. Y. Sales organizations. Good contact material manufacturing sources. Will accept position as assistant well rated organizations.

PW-622, Textile World
330 West 42nd St., New York 18, N. Y.

KNITTED OVERCOATING

Mill Superintendent or Manager open for position. Familiar with all kinds knitted overcoating and top coating.

PW-609, Textile World
330 West 42nd Street, New York 18, N. Y.

Over Forty-five Years of Dependable and Confidential EMPLOYMENT SERVICE

for textile mills, converters and selling houses requiring managers, superintendents, stylers, designers, salesmen, overseers, second hands, fixers, etc. 'Phone, wire or write us your personnel requirements.

CHARLES P. RAYMOND SERVICE, Inc.

Phone: Liberty 6547 **294 WASHINGTON STREET, BOSTON 8, MASS.**

SEARCHLIGHT SECTION

(Continued from page 273)

SELLING OPPORTUNITY WANTED

LINE WANTED. Highly capable salesman would like line for Southern territory. Especially such items that would be of interest to hosiery and underwear mills. SA-558, Textile World, 330 W. 42nd St., New York 18, N. Y.

CONTRACT WORK

GIRDLE KNITTING mill wishes contract work on one or two way stretch. CW-631, Textile World, 330 W. 42nd St., New York 18, N. Y.

WANTED A spinner to supply 2/20s worsted and zephyr yarns for a vertical setup with a complete modern knitting plant equipped to make jacquard and links sweaters, to start immediately. CW-632, Textile World, 330 W. 42nd St., New York 18, N. Y.

NEW YORK CITY knitting mill, Tompkins Spring Needle, desires connection with yarn mill for contract knitting or other mutual beneficial arrangement. CW-633, Textile World, 330 W. 42nd St., New York 18, N. Y.

BUSINESS OPPORTUNITY

WANTED TO BUY: Private party would like to buy a completely equipped spinning mill, capable of turning out 2/20s worsted yarn bradford spun. Would be interested in a small or large plant. Will pay top dollar. BO-634, Textile World, 330 W. 42nd St., New York 18, N. Y.

PROFITABLE OPPORTUNITY IN CANADA

For Knitted Underwear Manufacturer

One of Canada's oldest and largest underwear mills seeks to make a connection with a leading U. S. mill manufacturing a nationally advertised line of Cotton Underwear, with a view to producing this brand in Canada.

Address inquiries to

BO-607 Textile World,
330 W. 42nd St., New York 18, N.Y.

FRENCH TEXTILE CONNECTION AVAILABLE

French managing engineer, 45 years, specialist in textile industry, expert at creating, installing and organizing works and commercial departments wishes to contact a manufacturer or partner who is desirous of creating in France either general agency, branch or separate business.

Highest references furnished.

Address

BO-621, Textile World
330 West 42nd Street, New York 18, N. Y.

TO SELL YOUR BUSINESS FOR CASH MAY BE A WISE MOVE NOW

YOU may be relieved of much worry and unnecessary expense.

YOUR company (its personnel intact, as a rule) will gain the benefit of added capital, plus the expert management of an experienced, reputable operating organization.

THERE is profit in it for all. As principals (not brokers) with substantial finances and a background of long experience, we are interested in industrial plants.

• *ALL consultations and negotiations strictly confidential*

Box 1222, 1474 Broadway, N. Y.

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for

NEW EXPORT SALES

Wanted Textile Agencies

Well connected and old established Manufacturers Agents having unrivalled connections with wholesale warehouses in Great Britain are prepared to accept representation of first class Manufacturers of Men's, Women's and Children Hosiery underwear and General Textiles.

C. CLUTTEN & SON
Textile Exchange Buildings
St. Paul's Churchyard, London, E. C. 4

JUAN JOSE GARCIA ALLONGO

P. O. Box 1194
Trujillo City, Dominican Republic

Wishes to obtain the representation on a commission basis of several American manufacturers, for the Dominican territory. Especially interested in cloth and general textiles.

ARGENTINA

Merchant in Argentina, well established in textile line with excellent commercial and banking references such Argentine representations of textile machines, for spinning mills of dressed (combed) wool, for spinning mills of carded wool and cotton, for knitting mills, for dye plants, also all kinds of spare parts for same and needles for knitting machines. Also interested in obtaining representation and exclusive distribution of combed mercerized and "gassed" cotton yarn, rayon and nylon yarn—Send bids and catalogs to:

CHASKIEL SZAPIRO
Buenos Aires **Corrientes 5576**

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154 Nassau St. New York, N. Y.

Prominent Mfgrs.

of womens
underwear & pajamas
will purchase the following yarns & piecegoods

combed & carded cotton yarns & knit piecegoods

Combination blend yarns and knit piecegoods

Rayon yarns & Knit piecegoods

Circular Knit
Tricot Knit Milanese

Nylon Yarns & knit piecegoods

Box 650 Realservice Advertising
110 West 34th St., N. Y. C.

DYESTUFFS

Will buy your surplus and obsolete dyes and chemicals for cash.

NEW ENGLAND PRODUCTS CO.
91 Oliver St. **Boston, Mass.**

WANTED

Surplus
Chemicals, Dyes, Gums, Oils, Waxes, Greases, Pigments, Residues, By-Products, Wastes
W-270, Textile World
330 West 42nd St., New York 18, N. Y.

YARNS WANTED

Wanted to purchase surplus yarns of all types — cotton, rayon, acetate, nylon, silk, wool, spuns, and blends.

W-474, Textile World
330 West 42nd St., New York 18, N. Y.

Wanted Commission Braiding

Have plenty of Yarn for my type of work to be made on 17 carrier and other flat Braiders. Write

CW-610, Textile World
330 West 42nd St., New York 18, N. Y.

Sam Invented the "MULE" because his mother scolded him

THE "MULE" was perfected about 1779 by Samuel Crompton to make strong warp threads—because the yarn he spun, as a child, on the Hargreaves "jenny", was always breaking; and his mother scolded him for losing time joining threads. It was called a "mule" because it was a cross between the spinning jenny and Arkwright's Spinning Frame. Hargreave's yarn was so fine that rivals spied on his machine through gimlet holes in the ceiling.

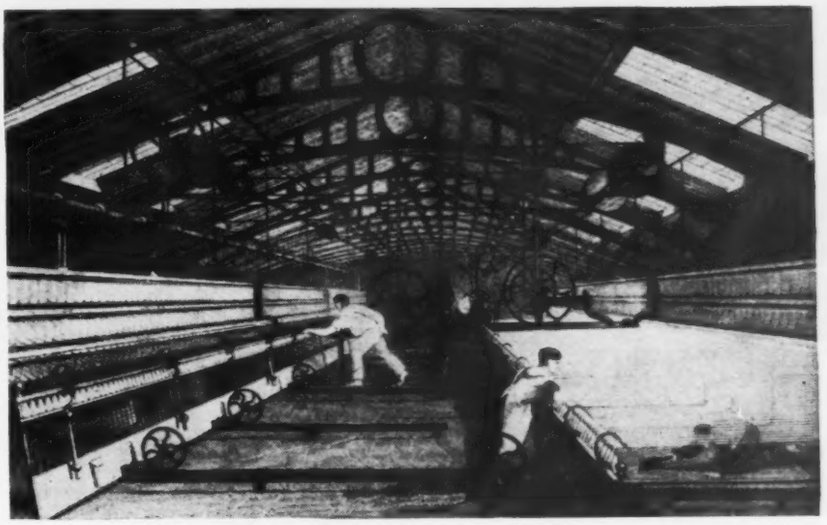

Illustration from the Bettman Archive

MLC SERVING THE TEXTILE INDUSTRY MLC

1—80" Batcher
2—±00 Sturtevant Blowers, paddle type, belt driven
1—66½, C&M Brushing Machine
3—2—46", 1—50" Button Breakers
1—48" Breast Card with Cyl., 6 rolls
1—48" Bridesburg Card Set, 2 Cyl. Wood
1—48" Furbush & Gage Card Set, 3 Cyl. Wood
1—66" Hartmann Card, 2 Cyl. iron card set with tape condenser and feeder, no clothing
8—Whitin Model C Combers
1—Whitin Model C Ribbon Lapper
1—Whitin Model C Sliver Lapper
1—Whitin Ribbon Lapper
1—Whitin Sliver Lapper
1—64" Voelker Dewing Machine
4—48" P&W Doubling, Boarding, and Winding Doublers
1—56" P&W rebuilt Doubling and Winding Machine with 100 yd. counter, motor driven
1—1 set 20 H.W. Butterworth dry cans, Dryer, motor driven, with Reeves drive
1—72" Schofield automatic Duster, no apron, no fan
2—26" Tolhurst Extractor, belt driven, overhauled
1—30" American Laundry Extractor, copper tinned basket, belt driven, under drive
2—40" Cleveland and Tolhurst, self-balancing copper basket extractors, top pulley drive
1—48" Tolhurst, self-balancing copper basket extractor, belt driven, under drive
1—5 can Van Vlaanderen narrow fabric Finishing Machine with Taylor instruments
6—40", 42", E&H and C&M folding machines, with take-up stand, chain drive, no motor
1—100" C&M flat fold Folding Machine, 1 HP GE Ind. motor
2—±10 Hunter 2 string fulling mills, belt drive
1—48"x21" Smith & Furbush Garnett with feed apron
1—49"x20" James Smith Garnett
15—40", 48", 60", 73", 90" Card and Napper Grinders, with and without floor stands
2—Peerless Belt Lacing Machines
1—Card Lacing Singer Machine ½ HP GE Ind. Motor
2—45½ C&K 4x1 Looms, 25 harness with 1 HP D.C. motors
4—82" McCloskey 4x4 Box looms, suitable for 25 harness belt driven
8—82" John J. McCloskey Indestructible Automatic 2x4 Box looms, 25 Harness, electric warp stop motions, motor driven
6—82" C&K, 4x4 Box looms, 25 Harness, belt driven
4—82" McCloskey 3x3 box looms with 4x4 extra boxes, friction clutch, belt driven
6—76" Draper Modified D automatic Looms, with lacey tops, belt driven, equipped with midget feelers, friction let-off, warp stop motions and 1½ beams per loom
2—Starch Mangles
1—42" C&M Measuring Machine, 60 yd. dial, belt drive
1—46" Measuring, Winding and Tubing with yardage indicator
1—54" P&W Measuring and Winding with 100 yd. clock with motor
1—64" P&W Measuring and Woolen Cloth Winder
1—66" P&W Measuring and Winding with clock, belt drive
1—66"x24" P&W 60 yd. Measuring Machine, sanded roll, belt drive
1—66" Woonsocket Double Napper, each cyl. with 20 rolls
1—80" D&F 20 roll Single Acting Napper, belt drive
1—20" Butterworth Rag Picker
1—40" Parkhurst Burr Picker
1—42" D&F Fearnaught mixer picker, belt driven
8—50", 65½", 66" and 98" Voelker and Gessner Single and Double rotary cloth presses
1—86"x42½" Cleveland Reel Warp
1—60" C&M single Blade Shear, plush, arranged for motor drive, no motor
1—66" C&M 2 blade Shear, belt driven
12—66" P&W 2 blade Shears, belt driven, Model B
2—66" P&W 21 blade Shears, Model A, belt driven
2—66" P&W file cut single Shear
2—66½" P&W single Blade Shears, belt driven
1—72" Monteforte 2 blade Shear
1—106" Schulze Double Shear
1—42" CM Singer with hood
1—32" D&F Jack Spooler
1—100 spindle Draper Spooler with Foster Tension, McCall guide
1—28" wide x 12" diameter set of Iron Squeeze rolls
1—60" C&M Single Brush Tiger, arranged for motor drive, no motor
3—100 spindle Saco-Lowell and Lowell Trap Twisters, 3½" ring, 5" gauge, arranged for chain motor drive, no motor
1—200 spindle Lowell Trap Twister, 3½" ring, 5" gauge, arranged for chain motor drive, no motor
1—200 spindle Draper Twister, tape drive, 2¼" ring, 3½" gauge
1—Washing Tub Agitator with motor
2—54" Entwistle Warpers
5—82", 87", 92" D&F Warpers with creed, beamer, reed stand
1—46" Winding, Boarding and Tubing Machine
2—58" P&W Winders, Edge, Stenciling and Winding
2—Sargent Yarn Conditioning Machines
1—Reduction Gear
1—±15533 Reeves Drive, Size 6, Class G, Range 3 to 1

Quantity of Mule Bobbins and Various Size Twister Bobbins and Wooden Spools

MACHINERY LIQUIDATING COMPANY

OPA REGISTRATION NUMBER 789

EST. 1923

31-33 West 42nd Street MLC NEW YORK 18, N. Y.

DOMESTIC TELEPHONE PEnnsylvania 6-8014 EXPORT

SPECIALISTS IN SELLING AND PURCHASING TEXTILE MACHINERY, ACCESSORIES AND MILL SUPPLIES

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VOELKER STEAM PRESS

66" Wide

ITEM 6781

GESSNER STEAM PRESS

Jumbo Type, 66" wide

ITEM 10998-B & 10999-B

2 WHITIN QUILLING MACHINES

304 Spindle—3½" Gauge Flat Belt Drive from Motor Mounted on Machine Frame

ITEM 9838

1—48 END SINGLE DRUM JACK SPOOLER

Or Compressor made by Worcester Warp Compressing Machine Co. 48" wide with Jack Spool Stand, 5 digit Veeder Root yardage counter new lot of Jack Spools with 12" Heads

ITEM 10188

25000—9 x 4½

COTTON SLUBBER BOBBINS

ITEM 10189

75000—7 x 3½

COTTON SPEEDER BOBBINS

ITEM 10190 R

1—3 CYLINDER C. & A. TIGER

All belt drive from 5 H.P. motor. 66" wide

ITEM 5594

1—4 CYLINDER P. & W. TIGER

66" Wide, each cylinder arranged for individual motor drive

ITEM BC

AIR COMPRESSOR

1—Ingersoll-Rand Model 25 2 stage 3 cylinder Air Compressor, Rotary type, 105 cu. ft. actual free air. Takes 25 H.P. motor

Collins & Aikman Corp.

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Located at Our Plant "L"
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Upland, Delaware Co., Pa.
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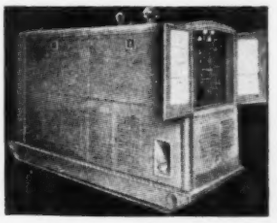

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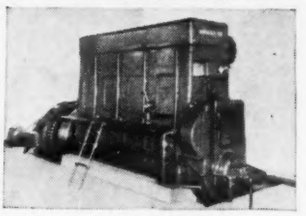

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Such As
Cylinders, Condensers, Workers
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PATERSON SILK OFFERS

160 Crompton & Knowles Automatic Looms 4 x 1 with 20 harness dobbies to weave 40" goods

50—Fletcher double deck spinners, 64 spindles each deck or 128 spindles to the machine. Each deck individually motor driven by a 3 HP motor. 7" center to center spacing. 5" Cork covered take up rollers.

8—Ribbon looms with dobbies, 15' 6" with double set of battens, one set for making Boucle fringe, the other set of battens for regular ribbon work.

20—Crompton & Knowles 4 x 4 48" Jacquard looms

20—Crompton & Knowles 2 x 2 48" Jacquard looms

Above looms complete with paperless beams, electric warp stop motion, pick counter, individually motor driven, extended bottom shafts for double lift Jacquards.

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100—#90 Universal quillers or coppers, with or without bunch builders belt driven or motor driven.

Foster winders #12 and #30.

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6—Atwood 5Bs Double twisters.

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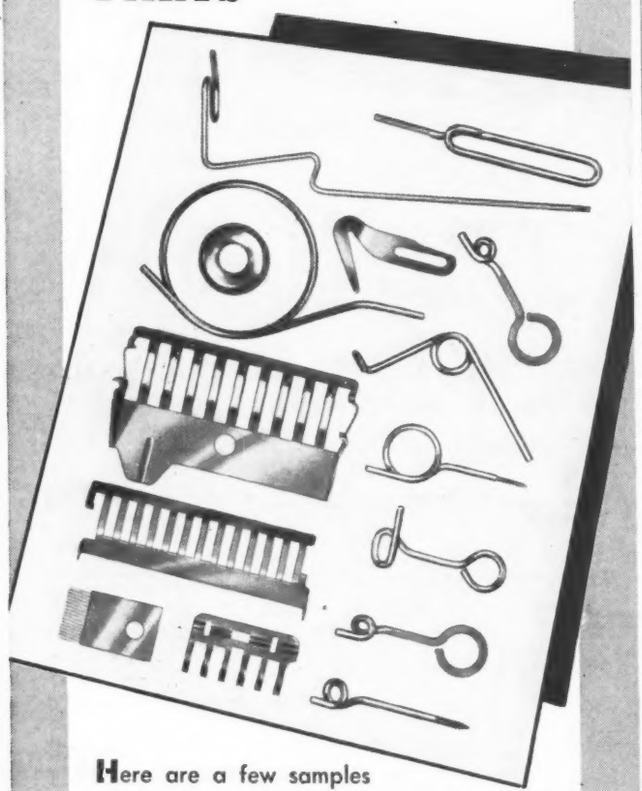

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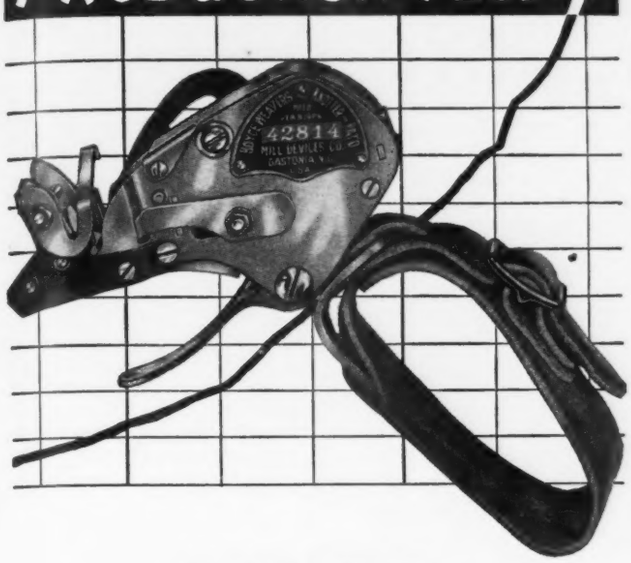
PRODUCTION PLUS+



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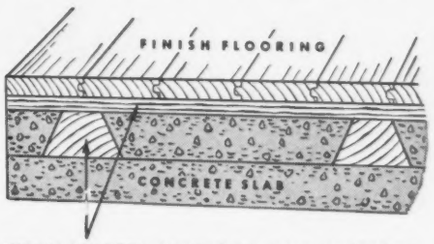
Speaking of floors

WE LIKE TO BE IN THE MIDDLE



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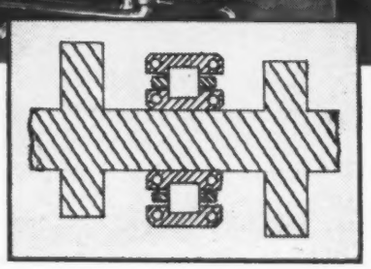
Pump designed by Chambersburg Eng. Co.

Here a Split Roller Bearing takes the center main bearing load, 18,000 pounds in this six-cylinder, vertical pump driven by 125 HP motor. Pump delivers at 5,200 POUNDS PER SQUARE INCH pressure.



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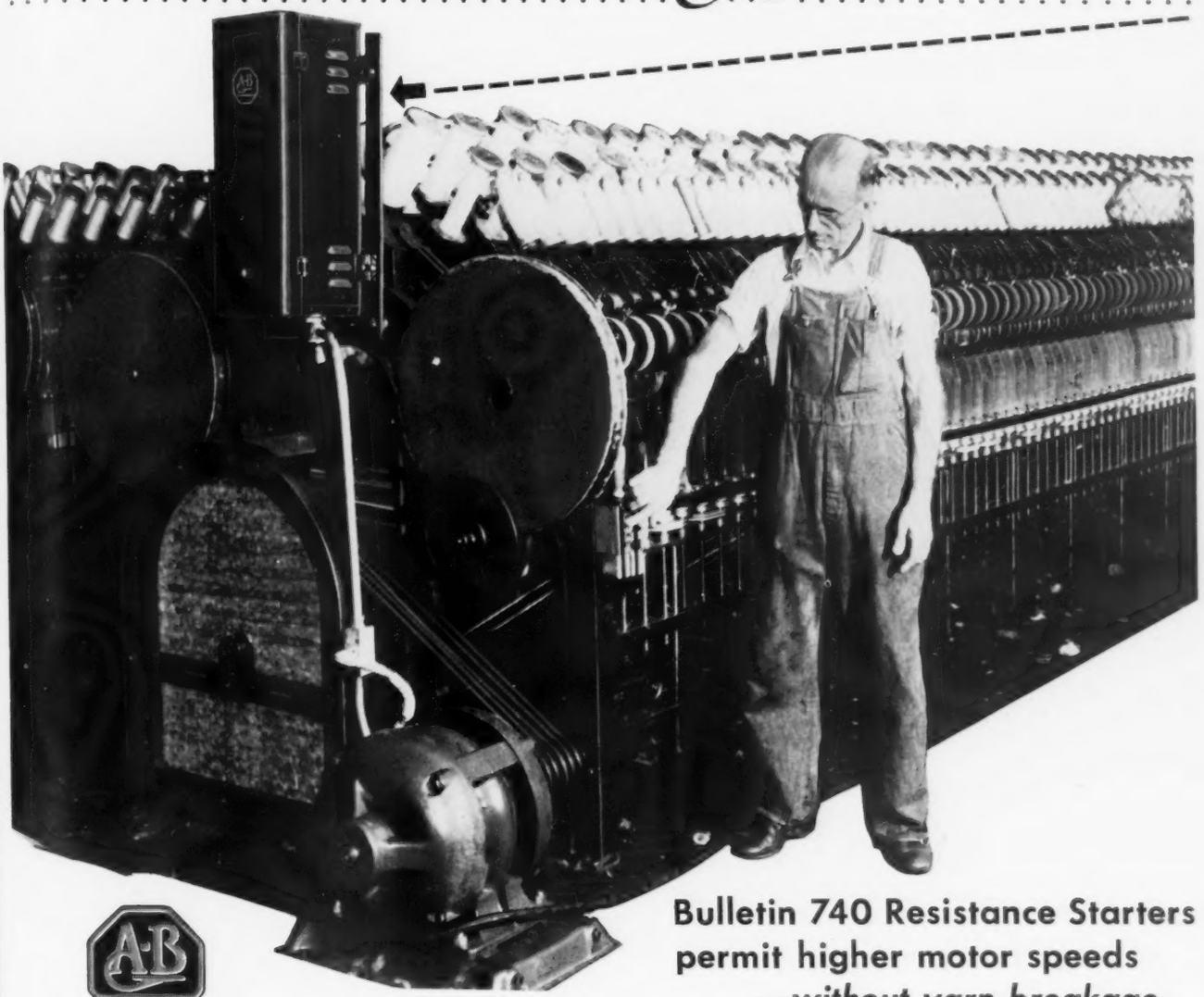
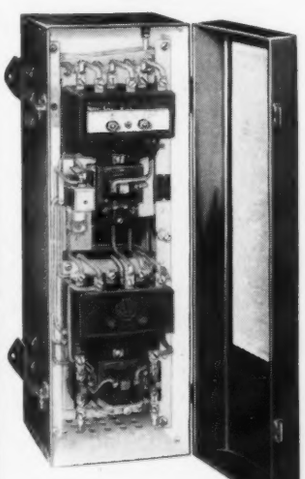
How Rollstone Worsted Mills
SPEEDED UP it's Ring Spinners 12½%



Bulletin 740 Resistance Starters permit higher motor speeds —*without yarn breakage*



Bulletin 740 automatic resistance starter provides velvet-smooth starting.

BECAUSE of thread breakage during across-the-line starting, Rollstone Worsted Mills, Fitchburg, Mass., found it necessary to operate their ring spinners at relatively slow speeds. However, when Allen-Bradley Bulletin 740 automatic resistance starters were installed, the machines started so smoothly and gradually that it was possible to speed up the ring spinners 12½% without thread breakage.

You, too, can start your textile machinery with velvet smoothness and reduce thread breakage with A-B compression resistance starters—either the Bulletin 640 hand-operated type or the Bulletin 740 automatic push button operated type. Write for bulletin. Allen-Bradley Co., 120 W. Greenfield Ave., Milwaukee 4, Wis.

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QUALITY

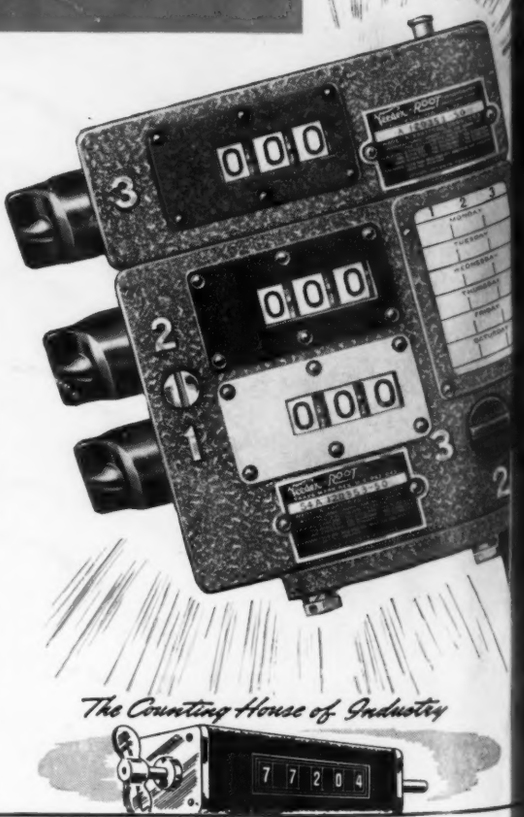
VELVET-SMOOTH MOTOR CONTROLS

TAKE THE WHEEL

that's designed to "steer you clear"

of Mechanical Over-Throwing . . .

. . . now standard on all VEEDER-ROOT 2-3 COUNTERS



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